Chemical Week

March 2, 1957

Price 35 cents

Pulpers gird for the long pull, plan 3.4 million tons of new capacity for '58 . . . . . p. 13

Matarazzo's Lederer: Brazilian chemical executive seeks joint ventures with U.S. firms . . p. 24

More efficient ozone process? That's one potential return on free-radicals research . . . p. 46

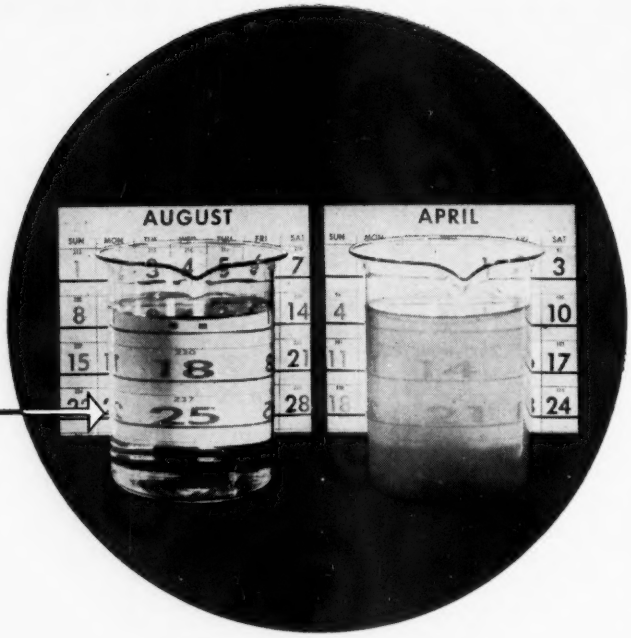
Chemicals for water treatment are rising to a new crest—sales will double by '75 . . . . . p. 58

Want to sell specialties to the telephone company? Here's the story behind Bell System buying . p. 64

UNIVERSITY MICROFILMS INC
313 N 1ST ST
ANN ARBOR MICH

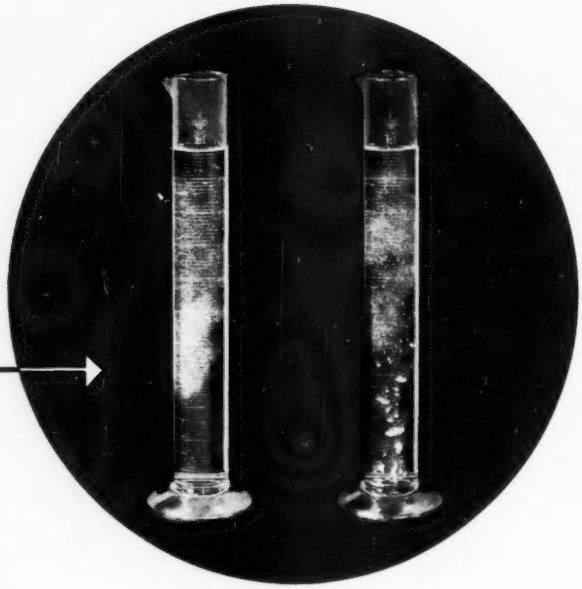
A McGRAW-HILL PUBLICATION

Clear Colorless Solutions *Faster!*



because

Disperses and Dissolves *So Quickly*



If you use soda ash in solution, you can probably speed up your processes by switching to Westvaco® Soda Ash.

While you watch, the free-flowing, needle-like crystals of Westvaco Soda Ash disperse and dissolve . . . form a clear, colorless solution . . . 94% as clear as distilled water by electrophotometer measurement. You never need break up lumps or clods, never need remove turbidity by filtration.

Add chemical purity, less dusting and better flowability to quick dispersion and dissolution and you have five good reasons for using Westvaco Soda Ash.

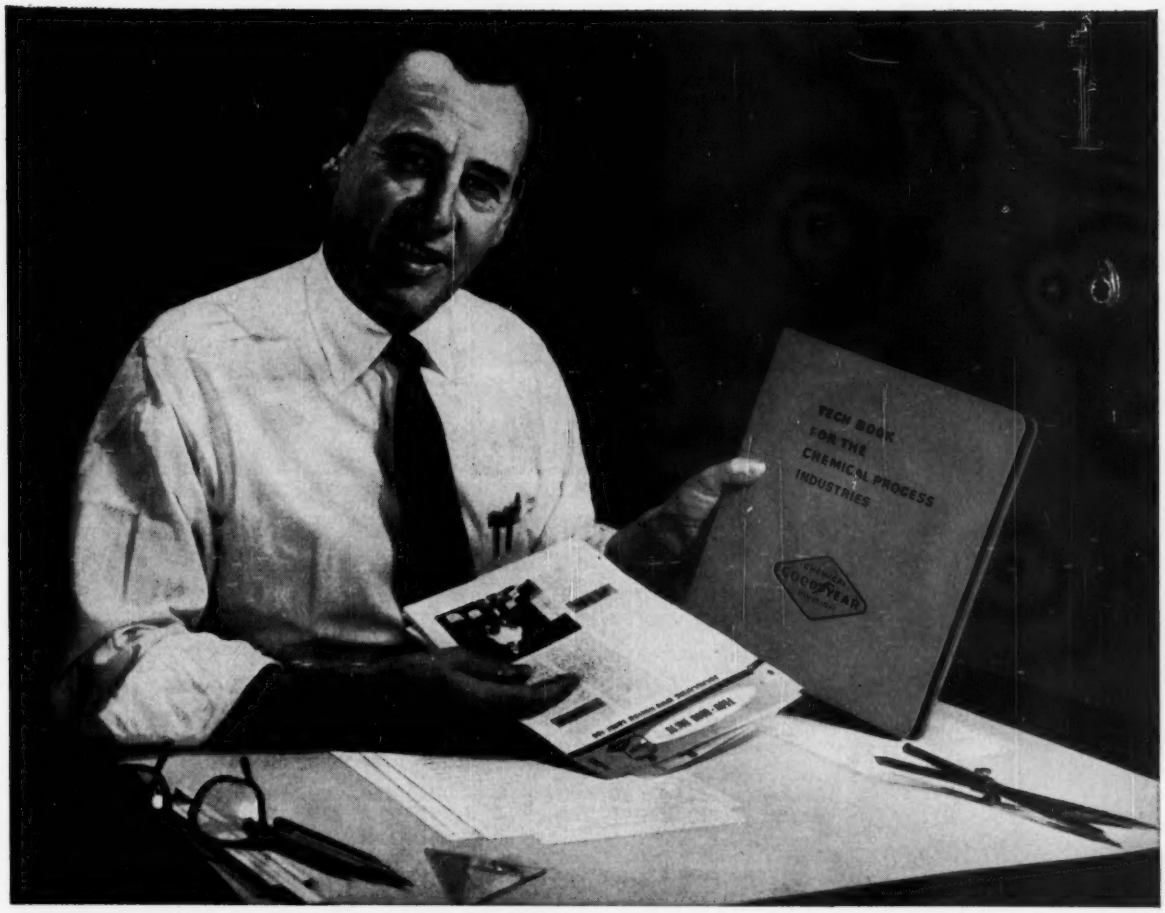
We can probably give you a bigger value for your money on your Soda Ash needs. Why not talk it over with us?

fmc® chemicals

Westvaco Chlor-Alkali Division
FOOD MACHINERY AND CHEMICAL CORPORATION

161 E. 42nd St., New York 17 • Chicago St. Louis Denver Philadelphia So. Charleston, W. Va.

BECCO peroxygen chemicals • FAIRFIELD pesticide compounds • FMC organic chemicals • NIAGARA insecticides, fungicides and industrial sulphur • OHIO-APEX plasticizers and resins • WESTVACO alkalis, solvents, phosphates, barium and magnesium chemicals



Now—A "Living Textbook" on Latex for You

Pictured above is the start of a new service to you from Goodyear. It's the *Tech Book for the Chemical Process Industries*—a compilation of technical information on the resins, rubbers, latices and related chemicals offered by the Chemical Division.

Of particular interest to you will be the sections of the Tech Book devoted to the complete line of latices manufactured by Goodyear. For here you'll find straightforward, detailed information on where, why and how to use the PLIOLITE Latices (both styrene rubber and resin types), the CHEMIGUM Latices (nitrile rubber type) and the PLIOVIC Latices (vinyl resin type) in superior sizes, saturants, inks and adhesives.

Moreover, this is just the "starter" of Tech Book service. It comes in a convenient, loose-leaf form so that it can be readily supplemented by periodic bulletins to keep *it* alive and *you* fully informed. Write today, on company letterhead, for your Tech Book and the start of the complete story on PLIOLITE, CHEMIGUM AND PLIOVIC LATICES plus other materials you can use to advantage. Address: Goodyear, Chemical Division, Akron 16, Ohio.

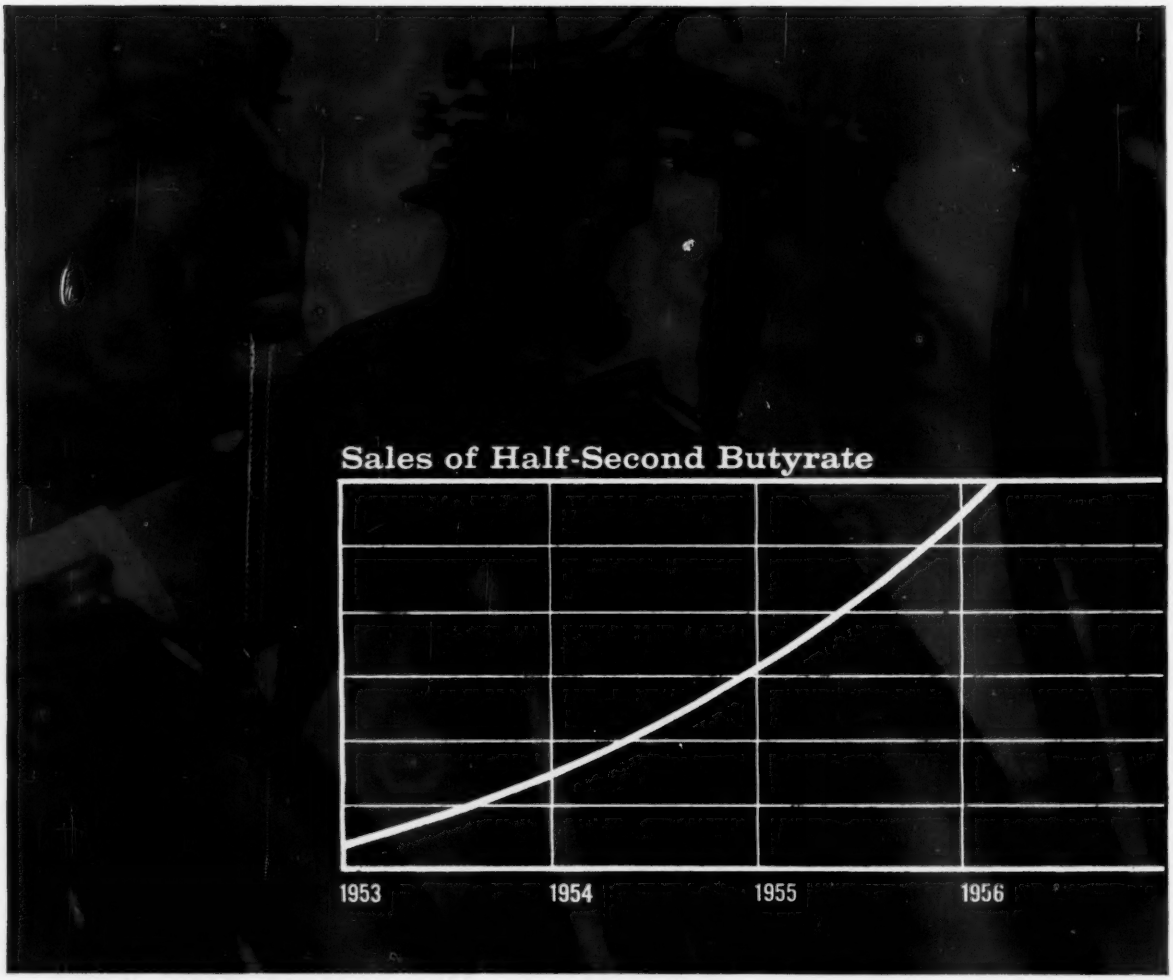
CHEMICAL
GOODYEAR
DIVISION

COATINGS
DEPARTMENT

Chemigum, Plioflex, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

CHEMIGUM • PLIOFLEX • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS

High Polymer Resins, Rubbers, Latices and Related Chemicals for the Process Industries



Use of Half-Second Butyrate is growing

Investigate this versatile film former

Since its introduction in 1953, the use of Half-Second Butyrate has been growing at a steadily accelerating pace.

First used to produce clear, durable lacquers for the protection of outdoor aluminum surfaces, Half-Second Butyrate is now being employed in a rapidly expanding number of important applications. In wood lacquers, for instance, it provides non-yellowing protection for light wood surfaces. In paper lacquers, it makes possible high-gloss films that resist scuffing, blocking and darkening. In bronzing lacquers, it means a non-gelling vehicle that does not react with metallic pigments.

Safely shipped and easily handled as a dry powder, Half-Second Butyrate produces films of low color and high clarity with excellent strength and flexibility at high and low temperatures. It can be formulated with readily available, low-cost solvents. Extremely stable to ultra-violet light, Half-Second Butyrate films retain their initially low color, high strength and flexibility for long periods. No other easily-sprayable, air-drying film former exhibits this combination of characteristics to such a high degree. In addition, Half-Second Butyrate films possess excellent abrasion resistance and are little affected by prolonged water immersion.

If you need a protective coating to decorate metal, wood, glass, plastic, paper or foil, consider the advantages and versatility of Eastman Half-Second Butyrate. Write for samples and information.

Eastman
CHEMICAL PRODUCTS, INC.
KINGSPORT, TENNESSEE
subsidiary of Eastman Kodak Company

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City; Framingham, Mass.; Cincinnati; Cleveland; Chicago; St. Louis; Houston.
West Coast: Wilson Meyer Co., San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

Chemical Week

TOP OF THE WEEK

March 2, 1957

Montecatini firms up U.S. chemical plans, gets its stock traded on New York Stock Exchange .....p. 15

Another firm will make fluorocarbon propellents. Union Carbide is fourth to enter field .....p. 16

New drum lining process goes commercial. Advantages: more uniform, more flawless linings .....p. 32

Novel liquidizer eases materials handling problems, may find new chemical applications .....p. 42

6 OPINION

9 BUSINESS NEWSLETTER

13 There's little fear of continuing overcapacity in pulp and paper

15 There's new evidence that union hopes to get Linde to bargain on company-wide basis

16 Smith-Douglass makes its third offer to take over Texas City Chemicals

21 WASHINGTON NEWSLETTER

22 CHARTING BUSINESS

24 ADMINISTRATION
Tightly held Matarazzo complex moves further into chemicals with U.S. companies' know-how

32 SALES

34 United Nations will try to reconcile world agency split on chemical hazard labels

36 Du Pont's Andrew Buchanan wins CCDA award

40 PRODUCTION
PVC package plant design includes sanitary piping

46 RESEARCH
Novel ozone process is discovered in Bureau of Standards research on free radicals

50 Systemic killer of cattle grubs points for million-dollar market

52 Tolbutamide, 'oral insulin,' found effective, relatively free of side effects

55 TECHNOLOGY NEWSLETTER

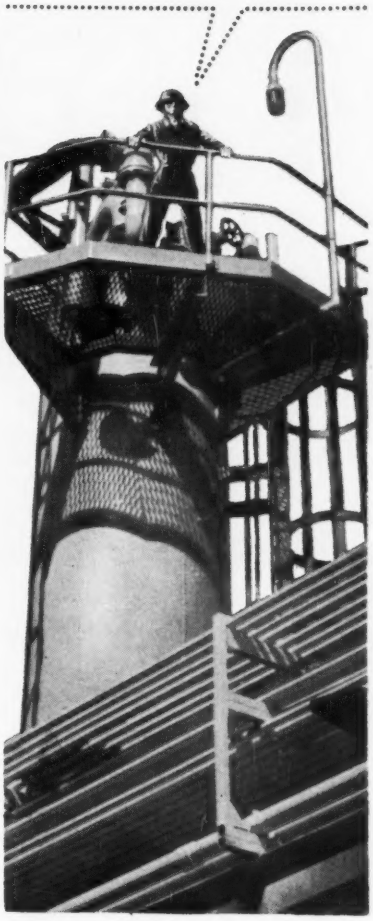
58 MARKETS
Water-treatment chemical sales volume should double in next 20 years

64 SPECIALTIES
Bell System buys $1 million worth of specialties each year

67 MARKET NEWSLETTER

75 Here's how aerosol consultants can help your firm

"when it comes to Acrylonitrile ...come to Cyanamid"

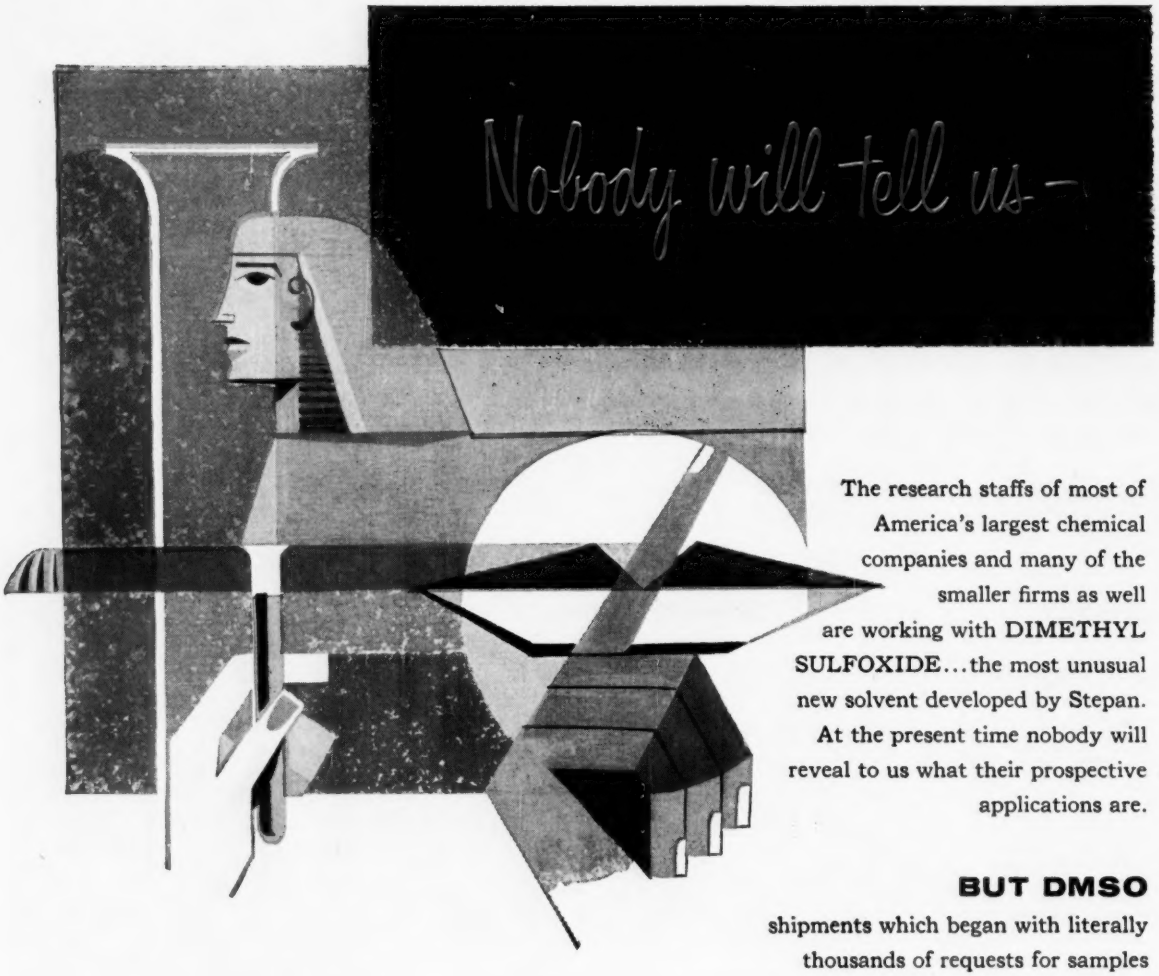


Whether you're a researcher or manufacturer... wanting facts or assured delivery schedules on Acrylonitrile—Cyanamid can tell you what you need to know or supply you with what you need to have. *Only* at Cyanamid will you find such extensive, well-organized technical literature and know-how ...and a production capacity ready for all demands.

"When it comes to Acrylonitrile... come to Cyanamid."

CYANAMID

AMERICAN CYANAMID COMPANY
PETROCHEMICALS DEPARTMENT
30 Rockefeller Plaza
New York 20, N. Y.



The research staffs of most of America's largest chemical companies and many of the smaller firms as well are working with DIMETHYL SULFOXIDE...the most unusual new solvent developed by Stepan. At the present time nobody will reveal to us what their prospective applications are.

BUT DMSO

shipments which began with literally thousands of requests for samples progressed to gallons and drums. The latter now with an encouragingly high percentage of repeat orders.

MANY USE PATENTS

we understand are being filed.

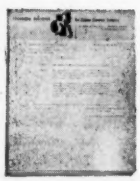
IF YOU

have not investigated DMSO for use in your product or process we would suggest that you do so. We would be pleased to furnish you with technical data and samples of DMSO.

STEPAN
CHEMICAL COMPANY

20 North Wacker Drive • Chicago 6, Illinois
Telephone CEntral 6-5511

NEW 50 PAGE DMSO TOXICOLOGY REPORT shows DMSO to be virtually non-toxic. If you would like a copy, write us.



Fatty Alcohol Sulfates • Bulk Liquid Detergents • Alkylolamides • Foam Stabilizers • Alkylphenol Polyalkoxy Sulfates • Non-Ionic Detergents • Custom Ethoxylation • Alkyl Phenols

Chemical Week

March 2, 1957 *Vol. 80, No. 9*

Publisher ..... Wallace F. Traendly
Editorial Director ..... Sidney D. Kirkpatrick
Editor ..... Howard C. E. Johnson
Managing Editor ..... Ralph R. Schulz
Assistant Managing Editor ..... William Olcott

ASSOCIATE EDITORS

Donald P. Burke Anthony J. Piombino J. Robert Warren

DEPARTMENTS

Administration ..... Homer Starr, *editor;* Leo J. Northart
Business News ..... Cooper R. McCarthy, *editor;* Robert L. Porter
Markets ..... Jorma Hyypia, *editor;* Frank S. Sciancalepore
Production ..... Kenneth Wilsey, *editor;* Herbert C. Short
Reports ..... Vincent L. Marsilia, *editor*
Research ..... Joseph F. Kalina, *editor;* Emil J. Mikity
Sales ..... John M. Winton, *editor*
Specialties ..... Richard J. Callahan, *editor;* Charles Joslin
Copy ..... William Mullinack, *editor*
Art ..... Donald R. Thayer, *director;* Peter Madden

REGIONAL EDITORS

Midwest ... Frank C. Byrnes, Chicago
Far West .. Elliot Schrier, San Francisco
Southwest ... James A. Lee, Houston

EDITORIAL ASSISTANTS

Marjorie Darby Frances Regan
Nina Seawick Eleanor Sternecker

NATIONAL NEWS

Economics .. Dexter M. Keezer, *director*
Douglas Greenwald, Robert P. Ulin
Atlanta ..... Charles T. Dixon
Cleveland ..... Robert E. Cochran
Dallas ..... Kemp Anderson, Jr.
Detroit ..... Harry Homewood
Los Angeles ..... John Shinn
San Francisco ..... Margaret Ralston
Washington .... George B. Bryant, Jr.

Correspondents in 73 principal cities.

WORLD NEWS

Editor ..... John Wilhelm
Beirut ..... O. M. Marashian
Bonn ..... Morrie Helitzer
London ..... William J. Coughlin
Melbourne ..... Alicja Grobtuch
Mexico City ..... John H. Kearney
Paris ..... Robert E. Farrell
Rio de Janeiro ..... Peter Weaver
Tokyo ..... Dan Kurzman

Correspondents in 51 principal cities.

Advertising Sales Manager ..... Robert S. Muller

Business Manager ..... Alvin J. Babkow
Advertising Makeup ... Robert L. Maier
Promotion Manager Edward T. Thompson
Market Service ..... Warren Langer
Advertising Salesmen ..... See page 76

Chemical Week (including Chemical Specialties and Chemical Industries) is published weekly by McGraw-Hill Publishing Company, Inc. James H. McGraw (1860-1948), founder. Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Publication Office: 1309 Noble St., Philadelphia 23, Pa. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice-President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Joseph H. Allen, Vice-President and Director of Advertising Sales; A. R. Venezian, Vice-President and Circulation Coordinator.

Subscriptions to Chemical Week are solicited from management men in the chemical process industries. Position and company connection must be indicated on subscription order. Address all subscription communications to Chemical Week Subscription Service, 330 W. 42nd St., New York 36, N. Y., or 1309 Noble St., Philadelphia 23, Pa. Allow one month for change of address.

Single copies 35¢. Subscription rates—United States, United States Possessions and Canada, $3.00 a year; $4.00 for two years; $5.00 for three years. Other Western Hemisphere countries, $15.00 a year; $26.00 for two years; $30.00 for three years. All other countries, $25.00 a year; $40.00 for two years; $50.00 for three years.

Second-class mail privileges authorized at Philadelphia, Pa.

© Copyright 1957 by McGraw-Hill Publishing Co., Inc. All rights reserved.

ONE-CARBON FRAGMENTS*

KAY-FRIES

TRIETHYL ORTHOFORMATE

$HC(OC_2H_5)_3$

TRIMETHYL ORTHOFORMATE

$HC(OCH_3)_3$

SODIUM FORMALDEHYDE BISULFITE

$HOCH_2SO_3Na$

*Intermediates used to supply one carbon atom in organic synthesis.

TECHNICAL DATA AVAILABLE

KAY-FRIES CHEMICALS, INC.

180 Madison Ave., N. Y. 16, N. Y.
MUrray Hill 6-0661

Do We Believe in Competition?

. . . **If we do,** we should certainly demand that Congress take a long, searching look at S. 11 and H.R. 11, companion bills to amend the Robinson-Patman Act.

Introduced in the current Congress by Senator Kefauver (D., Tenn.) and Representative Patman (D., Tex.), these bills are adroitly worded to suggest that their intent is to preserve competition. But their effect at the manufacturers' level would be just the opposite. The bills provide that a seller can meet a competitor's price in "good faith" unless the effect would be "a substantial lessening of competition."

Committee hearings will take place within the next few months, and the bills may well become law unless their perilous defects are made clear to congressmen.

At Senate Judiciary Committee hearings last summer, Attorney Henry H. Fowler, representing the Manufacturing Chemists' Assn., made a strong case against the Senate bill (*CW, July 21, '56, p. 126*).

Just a few week ago, strong opposition was also voiced by former Federal Trade Commission Chairman Edward Howrey, speaking to the Section of Antitrust Law of the New York State Bar Assn.

Can't Legislate Human Nature: Howrey points out, "In the hurly-burly of the marketplace, it is only human nature to engage in price bargaining . . . A market becomes noncompetitive the minute sellers fail to respond to each other's inducements . . . .

"The question, as I see it, is whether it should be the goal of Congress and FTC to obtain, by means of reasonable application and interpretation, widespread compliance with the law, or whether the act's already stubborn provisions should be made more unyielding to the demands of a highly competitive and dynamic economy."

Bills Are Inconsistent: Says Howrey, "S. 11 seeks to provide that where the lower price may result in a lessening of competition, it is *not* a defense for the seller to show that he acted in good faith and merely met competitive prices. The amendment is, of course, phrased in a much more clever, subtle and ambiguous fashion than this, but no one has denied that such is its purpose and effect.

"The favorite method of proving injury is to show that the lower price has either diverted or may divert trade to the seller or to the favored customer who buys for resale. The latter, it is contended, may either pass the price advantage on to his customer or use the differential to increase his advertising or improve his services to customers.

"If this is the law, and FTC says it is, then it is clear that any price difference, whether or not made in good faith, *may* result in injury to competition . . . . S. 11 will succeed, I am afraid, in making a law violator of almost everyone who is in the business of buying and selling goods."

Could Freight Be Absorbed? Probably the single most effective argument against S. 11 has been that it would prevent freight absorption. On this point Howrey says, "If a small producer in a distant rural area, for example, were to be prevented from absorbing freight and meeting his competitor's price in the city, where the demand exists, he might soon be driven out of business. The man with a freight rate advantage would be granted a monopoly in his area by operation of law. If he were a large producer, with several plants in different areas, his monopolistic advantages would thus be multiplied."

Senator Kefauver denied at hearings last June that it was his purpose to prevent freight absorption; he proposed an amendment to his bill (to which Representative Patman does not agree) providing that nothing therein "shall be construed to alter the law applicable to the absorption of freight or shipping charges."

"This, if it can be done, is certainly on the plus side," comments Howrey. "But, one must ask, how can such language be added to a bill designed to eliminate from the statute the very provision upon which the validity of freight absorption has always depended? To say that you *cannot* lower your price to meet competition, but *can* absorb freight, may be a neat use of the English language, but it is, of course, a complete paradox. . . . However, it does serve one useful purpose. It highlights the fact that the principal proponents of S. 11, a number of the trade associations that represent light consumer goods at the local wholesale and retail levels, are primarily interested in developing a uniform price system for themselves but not for all business. . . . If we could reduce the bill to this, in plain language, then we would all know what we are talking about."

Legislative Sophistry: What it all boils down to is, in Howrey's words, "the most outrageous sort of legislative sophistry. And yet, this is what makes S. 11 a 'natural' from a political standpoint. It permits the proponents of the bill to say to a protestor: 'Why, you are entirely mistaken! You can meet competitive prices. All we ask is, that in doing so, you don't hurt competitors.' "

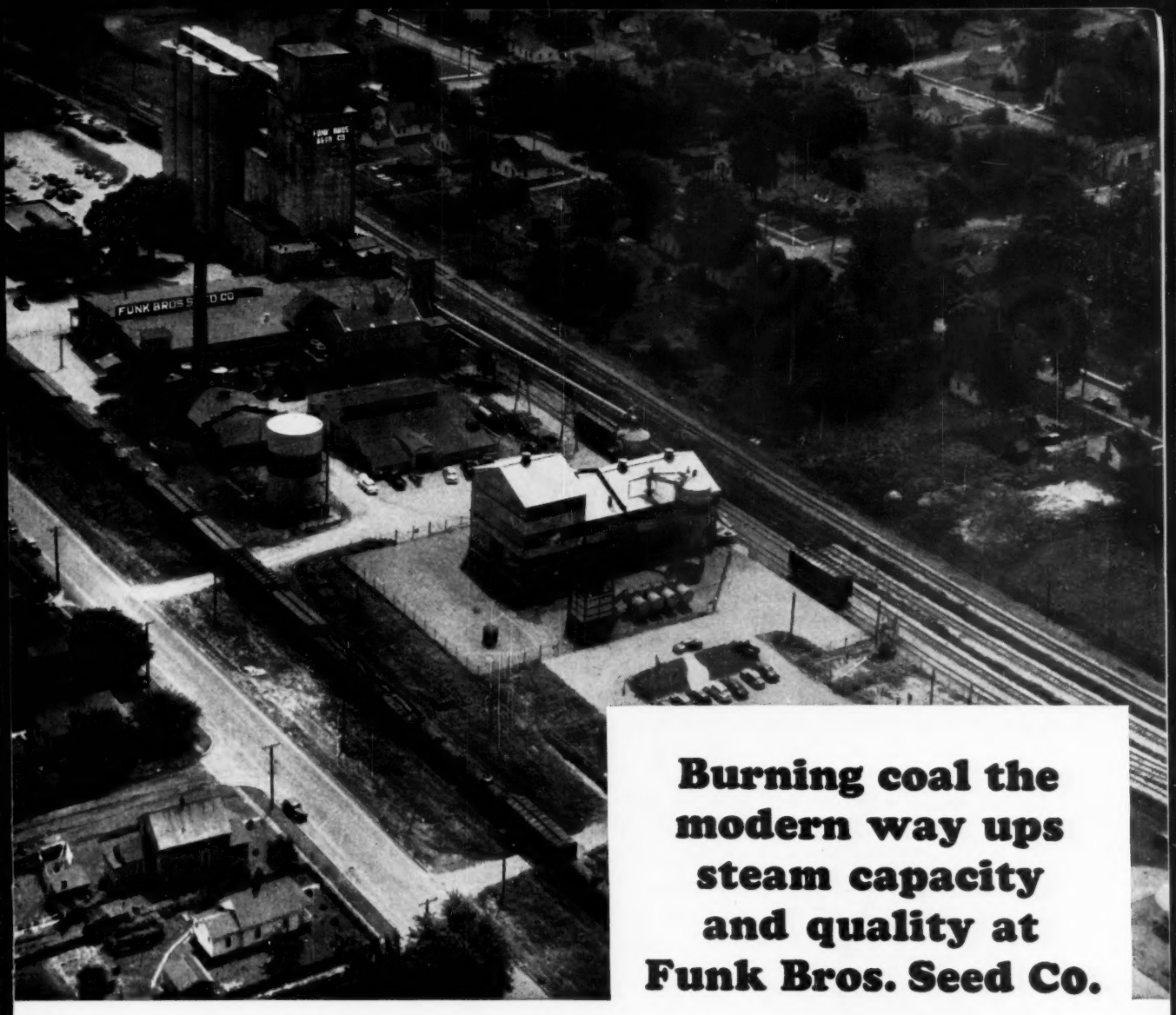
As a result, in the preceding Congress, the House passed a similar bill by an incredible 393-3 vote, and only the ringing of the adjournment bell forestalled final enactment—despite the fact that in both the Truman and Eisenhower Administrations, the White House, the Bureau of the Budget, the President's Council of Economic Advisors, the Dept. of Justice, and the Dept. of Commerce have all opposed this type of legislation.

Chemical Industry's Stake: Henry Fowler, in his statement last year, made it abundantly clear how this proposed legislation would work to the particular disadvantage of the chemical industry.

It behooves chemical businessmen to acquaint themselves with the bills and the arguments for and against them.

John D. Clark, member of President Truman's Council of Economic Advisors, neatly sums it all up: "All competitive effort is burdensome and harmful to those who cannot keep pace, but if we said it must stop short before it hurts anyone we would completely abandon competition."

Howard C. E. Johnson
Editor



Burning coal the modern way ups steam capacity and quality at Funk Bros. Seed Co.

Consult an engineering firm

Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities—or the remodeling of an existing installation—one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

facts you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available • Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar • Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use • No smoke or dust problems when coal is burned with modern equipment • Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

As Funk Bros. Seed Co., Bloomington, Ill., increased the capacity of its soybean extraction plant 50%, the firm's old steam plant proved inadequate. Not only was it unable to produce enough steam, but steam quality was not suitable for best processing conditions. To remedy this situation, the company installed a new 26,000 lbs./hr. boiler, automatic controls, automatic coal and ash handling system and related equipment.

Today the steam plant at Funk Bros. requires only one man per shift, holding one of the most attractive operating jobs in the plant. Evaporation rates are in excess of 9 lbs. of steam per lb. of coal and there is adequate high quality steam for further expansion requirements. Also cleaner plant conditions resulting from this modernization have greatly improved community relations.

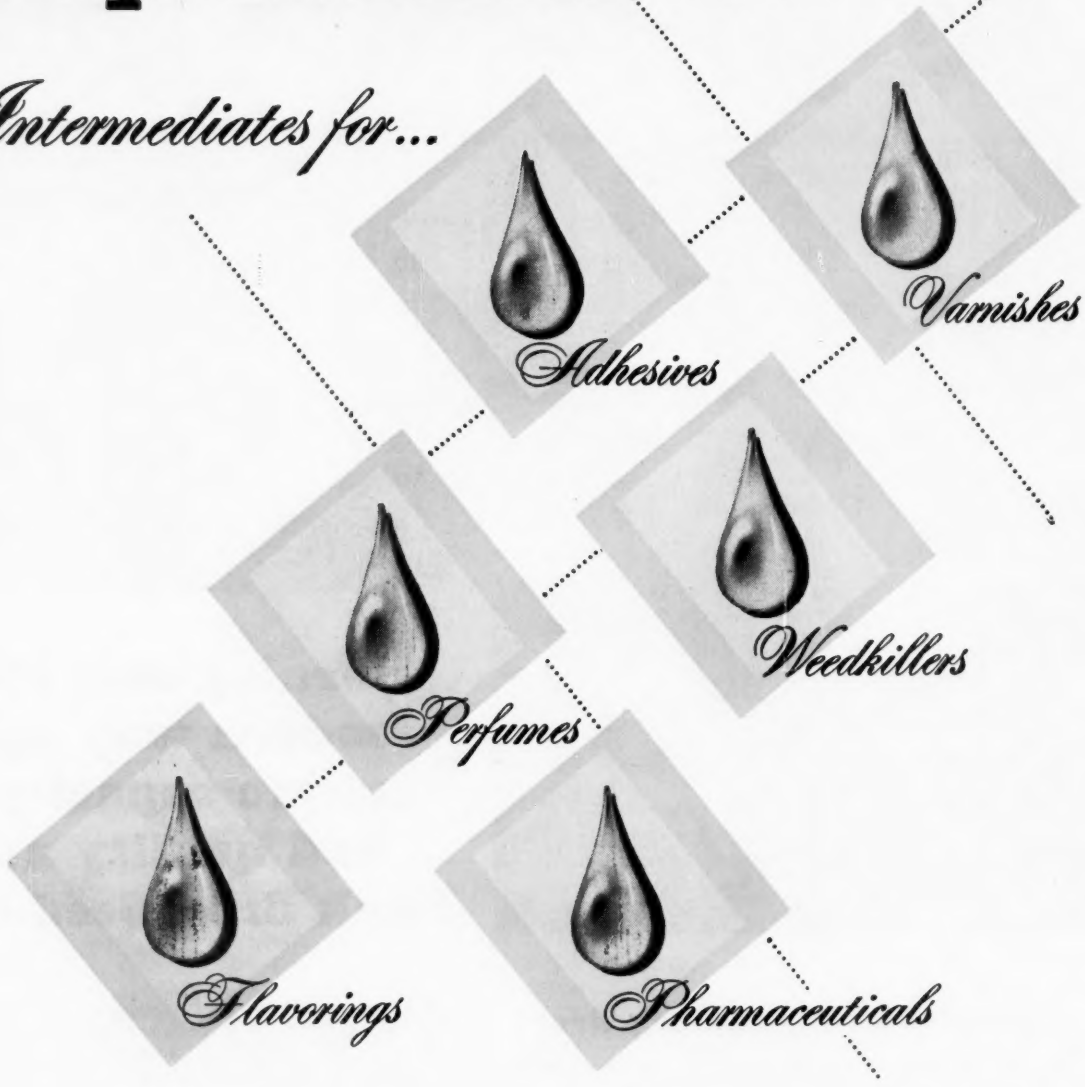
For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

BITUMINOUS COAL INSTITUTE
Southern Building • Washington 5, D. C.

Allyl Chloride $CH_2=CH-CH_2Cl$

Allyl Alcohol $CH_2=CH-CH_2OH$

Intermediates for...



SHELL CHEMICAL pioneered the production of high purity allyl chloride and allyl alcohol. Today, they have become important intermediates for many valuable chemicals.

Both chemicals are available in drums and tank cars. Conveniently located depots assure prompt shipment.

Your Shell Chemical representative will gladly discuss your allyl alcohol and allyl chloride requirements with you. Write for samples.

SHELL CHEMICAL CORPORATION

CHEMICAL SALES DIVISION—380 Madison Avenue, New York 17, New York

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver.

SHELL

Business
Newsletter

CHEMICAL WEEK
March 2, 1957

Want to buy control of General Aniline & Film Corp.? The government has set up this time-schedule for prospective buyers:

Sealed bids for 75% of the government's stock in GAF will be opened at 3:45 P.M. on April 23, provided the Swiss Holding Company, Interhandel, doesn't get some court to stop the sale.

The bids were formally requested in a prospectus issued Monday by the Justice Dept.'s Office of Alien Property, just after the Securities & Exchange Commission had approved and amended registration statement filed with it by the company—whose net worth has increased in value from about $35 million in 1942, to $110 million today. Its sales have shown a similar increase (*CW, Jan. 19, p. 20*).

But Interhandel isn't giving in easily. It filed suit Monday in the federal district court in Washington, D.C., for an injunction to prevent the sale. Two groups of Interhandel stockholders joined in the suit. The prime argument: litigation is still pending on the status of GAF stock—a point denied by the Justice Dept. It's contrary to federal law to change the status of vested property while litigation is still pending.

•

Can the fresh-water Great Lakes provide a source of salt? International Salt Co., at least, seems to think that there are commercially exploitable deposits beneath Lake Erie. It's seeking rights to mine salt on 5,100 acres under the lake bed just off Cleveland. The company has its eye on this site and on 200 acres under Whiskey Island as location for a mine that might employ 125 to 200 people.

The firm, which has done considerable exploring of the area, would invest $7-7.5 million equipping the mine, would pay the state of Ohio a royalty of 5¢/ton on salt it takes out. The lease is now being considered by Ohio's governor, C. William O'Neill.

•

It's sodium chlorate, not chloride, that's interesting American Potash & Chemical. The firm has picked a plant site eight miles south of Aberdeen, Miss., for its new $5-million chlorate unit (*CW Business Newsletter, Nov. 17, '56*). Construction will begin immediately, with operation scheduled for mid-'58.

•

Fatty acid methyl esters, 5 million bbls./year of them, will be produced in four new Stepan Chemical plants near Joliet, Ill. Stepan has previously said little about the products it would make in the units—which went into operation last week.

Stepan claims to use a unique process for making the methyl

laurate, methyl myristate, methyl palmitate, and methyl stearate. It will use most of its production of the esters.

•

Electric power's still short in the Pacific Northwest (*CW Business Newsletter, Feb. 9*). In spite of 100,000 kw. of provisional power supplied from Montana's Hungry Horse Dam, both Alcoa and Kaiser are unable to reactivate aluminum potlines in their Washington plants that were closed down when frozen streams choked off water for the hydroelectric generators at Bonneville. Hungry Horse will feed supplementary power to Bonneville users until about March 1.

•

Goodrich-Gulf Chemicals will double synthetic rubber production at its Institute, W. Va., plant. It's converting to cold rubber manufacture the second of three rubber production lines at the government-built plant it acquired a year ago. Use of the now-mothballed line will boost output by an estimated 50,000 long tons annually. Goodrich-Gulf paid $11 million for the plant last February, and has allotted $6 million to modernize the facility, of which $2 million will be spent in activating the second line. The firm reports no current plans to put the third production line into operation.

•

But there's less pleasant news for the six rubber companies accused by the federal government of fixing prices of rubber V-belts. They will be sentenced next week in federal district court at Denver. The companies—Gates Rubber, B. F. Goodrich, Goodyear, U. S. Rubber, Dayton Rubber and Boston Woven Hose and Rubber—were indicted last June on charges of violating the Sherman Antitrust Act. First pleading innocent, the firms later switched to pleas of no contest.

District Judge Jean Breitenstein, who has asked for statements from both the government and the companies concerning the "relative participation" of each firm, has advised the companies that they are liable for fines up to $50,000.

•

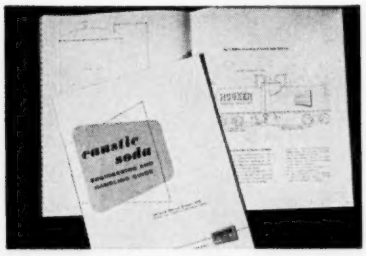
Plagued by rumors that it is selling its E. R. Squibb Division Olin Mathieson's president, Tom Nichols, is circulating a special memorandum to employees, reassuring them that despite several "substantial and unsolicited offers"—one reportedly by Revlon—Squibb is not for sale.

•

Sun Oil Co. has filed a $150-million damage suit against Stavros Niarchos' World Tankers Corp. Sun charges, in the suit before federal district court in New York that since Nov. 22, '56, World Tankers has failed to provide contracted-for ocean transportation for 33,200 bbls. of crude oil daily between the Mideast and Marcus Hook, Pa.

BRIEFS for buyers of

Caustic Soda
Chlorinated Aromatics
Muriatic Acid



New engineering guide helps you handle caustic soda safely

This 40-page file size Hooker manual helps you handle and store liquid caustic soda safely, efficiently, and with minimum risk of contamination.

Its contents include large, detailed diagrams of equipment; a section on materials of construction; recommendations for unloading, diluting, piping, and storage; and a section on safety precautions and first aid.

Eighteen graphs, charts, and tables help you predict and control the behavior of liquid caustic soda under a wide range of operating conditions.

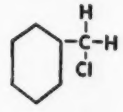
To get a copy, check the coupon for Hooker Bulletin 102, *Caustic Soda Engineering and Handling Guide.*

A buyer's guide on caustic soda

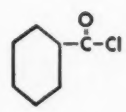
Hooker Bulletin 101 is also replete with useful information on caustic soda. But this one is edited especially for buyers.

It's pocket-sized for ready reference. Besides data on the forms and grades of Hooker caustic soda, its contents include a list of the advantages of 50% *versus* 73% liquid solutions and *vice versa;* comparative costs; capacities of tank cars and other containers; useful shipping information.

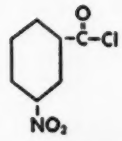
For a copy, check the coupon for the *Caustic Soda Buyer's Guide.*



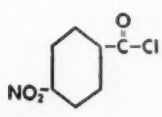
Benzyl Chloride



Benzoyl Chloride



m -Nitrobenzoyl Chloride



p -Nitrobenzoyl Chloride

Four versatile chloro aromatics

These Hooker aromatic compounds give you easy, practical ways of putting benzyl, benzoyl, and nitrobenzoyl groups into organic compounds, particularly through Friedel-Crafts reactions.

Each of these compounds will undergo other reactions to produce a variety of useful products.

All four compounds are high-quality chemicals. On two of them—*meta-* and *para-*nitrobenzoyl chloride—Hooker is the only brand available in commercial quantities.

You can order as little as a 5-gallon container of these compounds, or as much as a carload.

If you'd like to know more about the specifications and physical and chemical properties of these compounds, check the coupon for technical data sheets.

Fast way to make up solutions of muriatic acid

A mark on the coupon below will bring you a technical data sheet that shows at a glance how much Hooker muriatic acid you need to make up solutions of various strengths.

The same sheet gives some good advice on the safe handling of muriatic acid, and the specifications of Hooker muriatic.

Even a quick glance at the specs is likely to convince you that the purest muriatic you can buy anywhere in volume is "Hooker White" grade. Entirely free of arsenic and free chlorine, this grade contains no more than .003% sulfates, .0001% iron.

You'll discover that our commercial grade is only slightly less pure: iron, .0005%; free chlorine, a trace; sulfates, .003%; organic matter, .001%; arsenic, not a jot.

Both grades are available for your use in 13-gallon glass carboys and in rubber-lined tank cars in 18°, 20°, and 22° Baumé.

Check items you'd like to receive:

- ☐ Caustic Soda Engineering and Handling Guide, Bulletin 102
- ☐ Caustic Soda Buyer's Guide, Bulletin 101

Technical Data Sheets on:

- ☐ Caustic Soda
- ☐ Benzoyl Chloride
- ☐ Benzyl Chloride
- ☐ *meta*-Nitrobenzoyl Chloride
- ☐ *para*-Nitrobenzoyl Chloride
- ☐ Muriatic Acid

Keep your file up-to-date on these NIALK® brand Hooker chemicals:

- ☐ NIALK Caustic Potash
- ☐ NIALK Carbonate of Potash
- ☐ NIALK Trichlorethylene

Clip to your letterhead with your name and title, and mail to us. *When requesting samples, please use business letterhead to help speed delivery.*

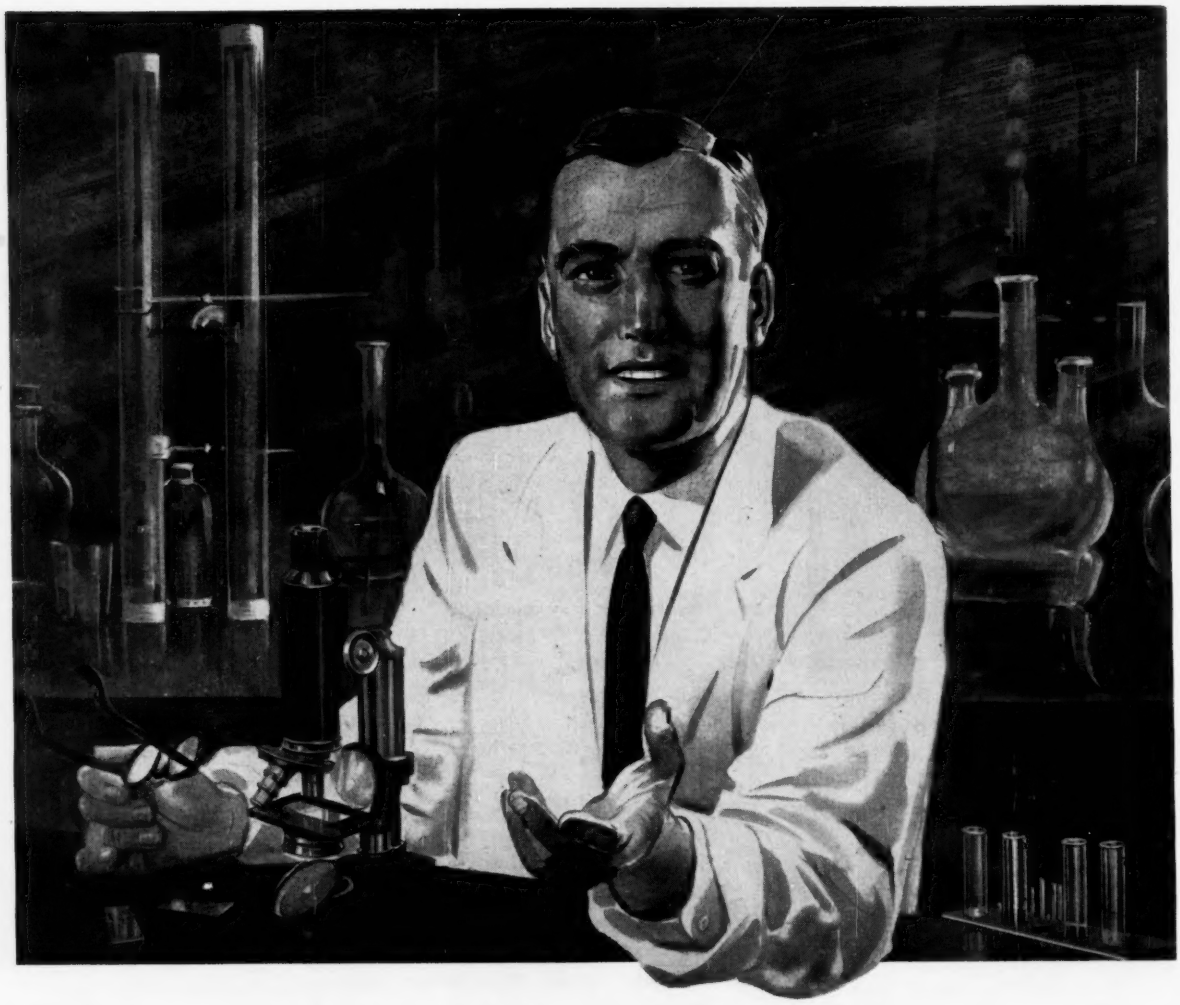
HOOKER CHEMICALS PLASTICS

HOOKER ELECTROCHEMICAL COMPANY

703-2 FORTY-SEVENTH STREET, NIAGARA FALLS, N. Y.

NIAGARA FALLS • TACOMA • MONTAGUE, MICH. • NEW YORK • CHICAGO • LOS ANGELES

663W9



Ask the man from Vanderbilt... about the NEW FORM of regular VEEGUM

VEEGUM F, the latest addition to the Veegum series of inorganic suspending and emulsifying agents, is now available as a micro fine white, free-flowing powder.

VEEGUM F is regular Veegum ground so fine that substantially all will pass through a 325 mesh screen.

With all the advantages of Veegum, this form is of special interest to those who formulate dry and are looking for an agent that will rehydrate rapidly.

Please send
☐ **VEEGUM** Bulletin C122 and data on **VEEGUM F** ☐ **VEEGUM F** sample

(state application) _____

NAME _____

POSITION _____

(please write on or attach to company letterhead)

VEEGUM

Veegum is a purified colloidal magnesium aluminum silicate. Available in several forms, it offers very superior suspending and emulsifying qualities.

Veegum disperses hydrophobic materials in water systems without lowering surface tension. Emulsions of many types of oils, fats, and waxes are permanently stabilized by less than one percent of Veegum. Aqueous dispersions of Veegum are compatible with alcohols, polyglycols, and other organic solvents.

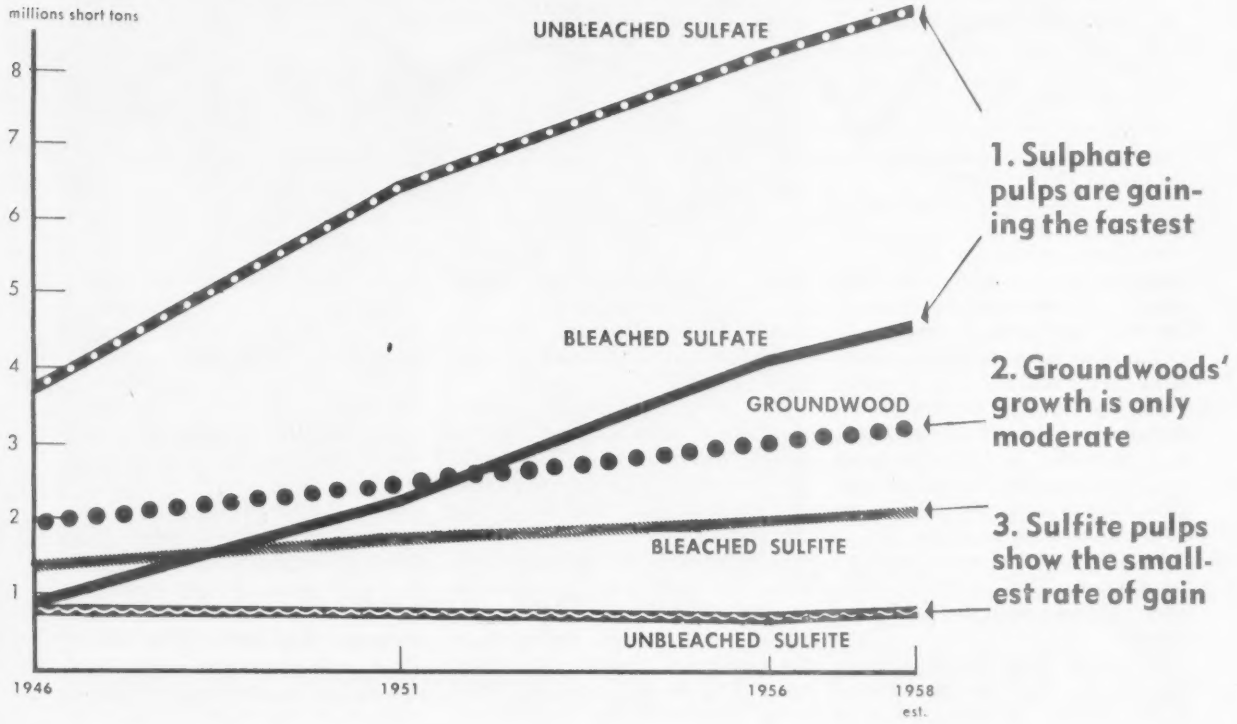
Veegum gives high solids suspension at low viscosity with improved stability.

Veegum is nontoxic, nonirritating, opaque, white, odorless, and tasteless.

← **WRITE TODAY FOR VEEGUM SAMPLES AND TECHNICAL DATA**

R. T. VANDERBILT CO. SPECIALTIES DEPARTMENT 230 PARK AVE., NEW YORK 17, N. Y.

The pulp lineup at start of the next expansion round



Pulp-Paper Industry Bets on More Growth

As members of the American Pulp and Paper Assn. and its 14 allied organizations gathered in New York last week for their annual convention, chemical suppliers to the pulp and paper industry focused attention on the proceedings, hoping to gain some clue to the future of this, the fastest-growing major segment of U.S. industry—and one of the biggest consumers of chemicals among the process industries.

Two questions were bothering chemical makers—as well as APPA delegates themselves: (1) Is there a threat of overcapacity in pulp and paper? (2) What would a cutback in paper production mean to related industries?

Almost everybody agrees there will be some overcapacity by the end of '58, but generally this doesn't seem to be much cause for gloom.

Nonfearsome Specter: Total paper and paper board production was about 31.4 million tons last year, approximately 5% above '55—but most of this gain came at the beginning of the year. In late '56, there was a definite easing in over-all production.

At the same time, estimates of total '56 spending for plant expansion continued to rise as the year went on. The year-end APPA '56 capital spending estimate: $806 million, 56.2% over the total for '55. And, according to newer APPA forecasts, expansion spending will go above that—$220 million is slated to be spent during the first quarter of '57. It's the contrast between rates of production and expansion that seems to herald some overcapacity.

But most pulp producers, while they admit there's bound to be some overcapacity by the end of '58, regard it as a natural thing—a leveling-off period following a year of phenomenal growth. None looks for big cutbacks or serious oversupplies—merely a return to normal conditions.

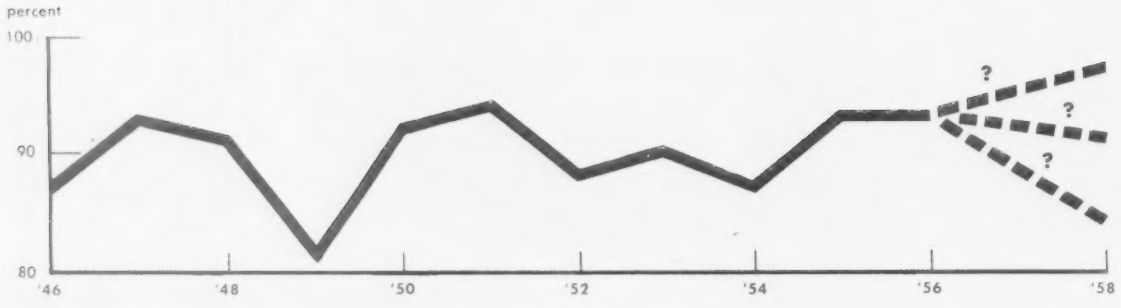
The future growth index on most pulps is actually very good. But there are some exceptions, notably on sulfites. This, however, does not represent any substantial change from the pattern of recent years (*see chart, above*). And while the production/capacity ratio for most mills is sure to drop somewhat, most producers aren't worried.

Says one authority, "A 95% operating rate is wonderful, but you can't complain about 85 to 90%." It's only if the ratio should drop much below this—and, right now, it doesn't look as though it will—would there be any serious downturn in pulp and paper production—and profits.

Chemicals, too: Particularly encouraged by the optimism of pulp

Production as a percent of capacity—

What will expansion do to the curve?



producers are chemical firms that, like pulpmakers, have enjoyed boom years. One firm reports that it now sells $5 million in chemicals to pulpers, whereas, in 1951, it sold less than $1 million worth. Another firm, Hooker Electrochemical Co., had sales of pulp chemicals amounting to $12 million last year, approximately 11% of its total sales. Another firm, with sales in the $600-million range, says its sales of chemicals to pulp and paper producers has increased 170% since '51. Most other suppliers point to similar increases.

Makers No More: Part of the growing sales to pulpers can be attributed to the tendency of more and more pulpers to buy, rather than make, chemicals. While paper companies used to think highly of do-it-yourself chemical operations, such as making chlorine or caustic, the trend is now away from such captive operations. Reason: high cost. It's just about as expensive on a per ton/day basis to build a chlorine unit as it is to build a paper mill. (Each costs approximately $125,000 per ton/day.)

Product Emphasis: Besides the gradual swing away from making their own chemicals, pulpmakers have altered their output patterns. One of the most striking changes has been the growth in kraft paper production. This material is made from sulfate pulp, whereas, back in the '20s and '30s, the biggest-volume items were made from sulfite pulp. The switch to kraft was a natural one, too, when over-all U.S. reserves of spruce and hemlock started to get smaller. Now, papermakers are turning to the exploitation of pine, available in big supplies in the southern U.S. Also, much of the research in the industry has concentrated on developing the kraft sulfate process and new kraft products. (These changes have not, however, greatly altered chemical consumption patterns of pulpers.)

Also coming fast are the groundwood grades. This is the pulp used to make newsprint, the only paper product that is critically underproduced today. However, some observers close to the industry say that even newsprint will be abundant by the end of this year. The importance of groundwoods to chemical makers is naturally not one of chemical supply. Rather, it's in the question of whether such papers can and will be substituted for papers using chemicals in their manufacture.

Another grade that's making a big name for itself in the industry is semichemical pulp. This is the product of partly mechanically processed hardwood, which is finding an ever-increasing number of uses. Semichemical pulps, of course, do not use as much chemical, per ton of pulp, as do older processes. Consumption of semichemical pulp rose from almost nothing 25 years ago to about 1.6 million tons last year. It's expected to continue growing at an even faster pace.

Assured Markets: One thing chemical producers can be sure about: there's certainly no trend away from big-volume pulp and paper operations. Barring an over-all downturn in the economy, most paper firms will go ahead with expansion plans. And though there is some basis for fears of overcapacity, the threat is expected to be only temporary, becoming less serious as the per-capita consumption of paper (430 lbs./person in '56) continues its rise.

Chemicals Bought By a Large Paper Company During 1956

	Tons	Cost
Chlorine	18,000	$1 million
Clays	70,000	1 million
Starches	12-14,000	2 million
Soda ash	40,000	1 million
Titanium dioxide	2,000	1 million
Caustic soda	5,000	250,000
Rosin	2,000	300,000
Sulfur	11,000	300,000
Alum	10,000	400,000
Sodium sulfite	7-8,000	200,000
Casein	100	100,000
Sulfuric acid	12,000	250,000
Salt cake	32,000	900,000
Salt	25-30,000	100,000

MONTECATINI LISTING: Faina (left) buys first shares, heralding . . .

Italian Competition in U.S.

American process management got its first detailed look last week at a company that may soon offer brisk competition in this country—Italian-based Montecatini. The occasion: listing of 'Catini's stock on the New York Stock Exchange (*CW Business Newsletter, Feb. 23*).

At the time of the formal listing (*see cut*), Carlos Faina, 'Catinis' president and managing director, told *CW* that besides facilitating U.S. purchases of its stock, the firm is studying plant sites in Texas, Ohio, Missouri, Louisiana and West Virginia, among others. Though plans are not yet specific, Faina said the mining and chemical firm's first unit in this country would be a unit to make chemicals.

Montecatini has listed for sale in the U.S. 20 million American shares of stock, each share representing five shares of the company's Italian stock. The U.S. shares are in the form of American Depository Receipts, each of which certifies that five shares of actual Montecatini stock are on deposit in Italian banks. (Such an arrangement gets around the need for a physical transfer of company shares between the two countries each time a sale of stock is made.)

Sales Story: Faina reported that 1956 sales of about $296 million would top '55's sales by some 8%, while net profits would be up 4%, to $17.3 million. Sales in '55 were $276 million; net was $16.8 million.

The company's chemical process divisions—its application for listing on the exchange reveals—represent by far the largest proportion of sales. Breakdown for '55, equivalent to that for '56 according to Faina, distributed sales by 'Catini and consolidated subsidiaries in these proportions:

- Agricultural chemicals, 36.8%.
- Industrial chemicals, 34.6%.
- Metallurgical products, 9.7%.
- Mineral products, 7.2%.
- Pharmaceutical chemicals, 6.9%.
- Miscellaneous (including electrical power), 4.8%.

Currently, negotiations are under way with a number of U.S. firms for licensing of the so-called Natta patents dealing primarily with polypropylene. No firm agreements have been signed, however, Faina reports.

Labor in Concert?

Employees of a fifth Linde Air Products Co. plant, organized by Oil, Chemical & Atomic Workers (AFL-CIO), have gone out on strike.

Strikers at the Union Carbide division's Moundsville, W. Va., acetylene plant have joined OCAW workers of Linde's plants at Kittaning, Pa., Essington, Pa., Tonawanda, N.Y., and Youngstown, O., in what Linde officials strongly suggest is a move by OCAW to get the company to accept multiplant bargaining—one of the union's admitted long-range goals. Negotiations at Moundsville are over terms of the initial contract; the union was certified as bargaining agent after an election last fall.

Meanwhile, at OCAW headquarters in Denver, union Vice-President Ben Schafer reported that the Linde strikes came after "these locals had learned from bitter experience the futility of any effective results with the local management." Basic items in dispute, said the union, include wage increases, contract work clauses, union shop, holiday pay, weekend premiums, and length of agreement. Schafer also said there's a need for council-type bargaining because local management can't "make effective bargains."

In spite of Schafer's statement, however, union officials deny that they are currently trying to institute multiplant negotiations with Linde. They do concede, however, that "elements of concerted action" are involved in the concurrent strikes: "It's the duty of the union for all to work together, and the international will help locals, as locals are expected to help the international."

Carbide on the other hand, feels pretty sure that the union seeks divisionwide negotiations, looks on Schafer's statement as a pretty definite admission that such is the case.

As of last week, no progress was reported in any of the walkouts. Federal mediators at Kittaning have called a meeting for this week to discuss issues; at a meeting at Essington, mediators were unsuccessful in resolving the issues.

PLANT SITE: For Carbide's West Virginia chemical complex, a new unit.

New Face in Fluorocarbons

Unrolling blueprints for a new 50-million-lbs./year fluorocarbon plant at its Institute, W. Va., chemical complex, Carbide and Carbon Chemicals Co. last week bid for a share of a fast-growing business. First products of the new unit, due in operation in late '58, will be the fluorinated hydrocarbons used as refrigerants and aerosol propellents.

Although UCC's Bakelite Division has been doing developmental work on fluorine-containing polymers for some time—it obtained a fast tax write-off for a new plant some years ago—it's with this proposed plant that Carbide is taking its first commercial step in fluorocarbons. With the new plant, Carbide will become fourth producer of the fluorinated gases, joining Du Pont, General Chemical and Pennsalt. This plant will bring U.S. capacity for such gases to more than 300 million lbs./year.

Carbide isn't saying exactly which of the half-dozen currently used molecular configurations of fluorinated methane and ethane it plans to market first. Nor has it settled on a tradename. (Du Pont calls its products Freons; General, Genetrons; and Pennsalt, Isotrons.)

Stepping Stone: Outside of the Bakelite research and UCC's production of fluorine at Oak Ridge, Carbide hasn't been particularly associated with fluorine chemistry. It does not, at least at the present time, have a captive source of fluorspar or hydrofluoric acid (several other firms making fluorocarbons, however, buy hydrogen fluoride). Carbide has, in fact, deliberately skirted raw-material supply questions.

Although the fluorinated gases are No. 1 on Carbide's fluorocarbon parade, it appears to have definite plans to go into the manufacture of other fluorine-containing products. Bakelite's work with fluorinated resins indicates one direction of research. Other interest areas might include agricultural chemicals, surface-active agents, lubricants.

Plus on Marketing: Carbide has extensive marketing experience in products for aerosol specialties—e.g., emulsifiers. And, through its Linde Division, it has plenty of background in handling compressed gases, as well as ample storage and shipping facilities (120 bulk stations, 1,000 warehouses). John Field, a vice-president of Carbide and Carbon Chemicals Co., is setting up the sales organization that will handle the new products.

Also planned: establishment of customer service laboratory to help on formulation and engineering problems.

Try and Try Again

There was little choice for the creditors voting this week on a third plan to reorganize the bankrupt Texas City Chemicals, Inc. Like the two previous plans, this one came from Smith-Douglass Co. (Norfolk, Va.), still the only firm to show an interest in the defunct Texas City dicalcium phosphate plant. Indications were, therefore, that the creditors had to accept a reorganization by Smith-Douglass, pretty much on its own terms, or nothing.

Not all creditors thought that new terms were called for, however. When Internal Revenue Service refused to grant a precedent-setting ruling allowing a tax loss carryover of about $4 million, S-D drastically cut the scope of its plan. Whereas creditors had been scheduled to get $1 million worth of new debentures, the new plan would give them but $400,000. Other provisions of this plan also favor the reorganizer: S-D would get all the new stock (creditors would have gotten 15%); the Texas City founders would contribute another $100,000 against interest on the mortgage in addition to the $700,000 already agreed upon.

Tax Loss Lost? The $4-million tax loss is far from lost, however, and this is what disconcerts the creditors, who feel they are being penalized prematurely. S-D, itself, concedes that IRS "will have to fight for it" if the tax loss is disallowed.

If S-D gets the tax loss, it would likely be able to run the Texas City plant tax-free for the next five years, since it's considered improbable that the plant can generate enough profit during that time to use up the $4 million.

Sharing this tax umbrella would be S-D's San Jacinto Ordnance Depot fertilizer plant, which—as part of the proposed reorganization—would be made a part of the Texas City company. Having heard from the creditors (but not being bound by their decision), the U.S. district court in Galveston, Tex., next must decide whether to let S-D reorganize or to let the First National Bank of Dallas foreclose on its $3-million mortgage.

If foreclosure is decided upon, Smith-Douglass won't be among the losers. S-D has trustee certificates for the amount it has spent so far—$286,000—on rejuvenating the plant.

EXPANSION

Sulfuric Acid: Du Pont will build a new sulfuric acid plant near Ecorse, Mich. The new unit will replace the existing Ecorse plant, now considered obsolete. Onstream date: early '58.

•

Ammonia: Apache Powder Co. (Benson, Ariz.) is adding a $1-million ammonia synthesis plant to its explosives works in Curtis, Ariz. The new installation, to be engineered by Girdler, should be operating by late 1957.

•

Cellophane: Du Pont is planning a 50-million-lbs./year cellophane plant near Topeka, Kan. Construction will get under way this spring.

COMPANIES

Weyerhaeuser Timber Co., pending stockholders' and board of directors' approval, will acquire Eddy Paper Corp. and Kieckhefer Container Corp. Terms of the Eddy transaction call for an exchange of 10 Weyerhaeuser shares for each share of Eddy.

•

Owens-Corning Fiberglas Corp. next month will offer 300,000 shares of common stock for public sale. Proceeds will be used to help finance expenditures of $21 million budgeted for this year. A group of underwriters headed by Goldman, Sachs & Co., Lazard Freres & Co. and White, Weld & Co. will handle the sale.

•

Bowater Paper Corp. (Montreal) will borrow $21 million from a group of insurance companies and bankers to finance installation of a new newsprint machine at its Southern Paper Corp. mill in Calhoun, Tenn. The new machine, scheduled for operation in 1959, will boost total capacity of the Calhoun mill to 435,000 tons/year.

•

Standard Oil Co. of Indiana has purchased all the outstanding common stock of Schrock Bros. Co. (Congerville, Ill.), a fertilizer firm. Schrock will continue operating as a Standard Oil affiliate, producing anhydrous ammonia for Midwestern markets.

•

Baxter Laboratories (Morton Grove, Ill.) will acquire all the outstanding stock of Wallerstein Co. Inc. (New York City). Baxter will buy the stock from Lehman Bros., New York investment bankers, for an undisclosed amount of cash and $1.8 million in subordinated debentures. The latter are convertible into Baxter common stock at $16/share.

•

St. Regis Paper Co. plans to acquire St. Paul & Tacoma Lumber Co. (Tacoma, Wash.) through an exchange of stock. Terms of the transaction, not yet approved by stockholders of both firms, call for an exchange of up to 850,000 shares of St. Regis common for the 15,000 shares of St. Paul & Tacoma outstanding.

FOREIGN

Fertilizer/South Africa: Fisons (PTY), South African associate of the British firm Fisons Ltd., will build a $5.6-million fertilizer plant in Sasolburg. The new plant, scheduled to produce 200,000 tons/year of superphosphate, will adjoin Sasol's oil-from-coal unit.

•

Chlorine-Caustic/Finland: Oulu O/Y Co. is building a new plant near the port of Oulu that will turn out 6,000 tons/year of chlorine, 6,600 tons/year of caustic soda, 170 tons/year of hydrogen gas. The firm will use 4,200 tons/year of chlorine in its pulp-bleaching plant, will sell the surplus.

•

Pharmaceuticals/England: Merck & Co.'s British subsidiary, Merck, Sharp & Dohme, Ltd., has acquired all the outstanding stock of Thomas Morson & Son Ltd. (Ponders End, England).

•

Dyes/Brazil: Three Swiss chemical companies—Geigy, Ciba and Sandoz—will build a new dye production unit, which they describe as the largest of its kind in South America. Initial production, scheduled to start in 1959, will include 300 metric tons/year of aniline dyes, 150 tons of other chemicals destined for pharmaceutical, tanning, and other industries. The plant will be located near Resende, in the Rio de Janeiro Province.

•

Polyester Fiber/Japan: Imperial Chemical Industries has licensed two Japanese firms to manufacture polyester fiber. Toyo Rayon Co. will build a $41.7-million plant, with a 10,000-lbs./day capacity, at Mishima. The other company, Teikoku Rayon Co., will build a $38.9-million plant, also to produce 10,000 lbs./day, at Matsuyama. The licensing arrangement includes a "substantial fixed payment" to ICI and a continuing royalty on sales. The Japanese companies will not have the right to export polyester filament yarn, staple fiber or film to Britain or to any other country in which ICI has relevant patent rights.

•

Paper/India: The Indian Ministry of Heavy Industries has revealed plans for expanding the country's paper industry. By 1961, according to the nation's second five-year plan, production should rise from last year's 187,000 tons to 543,000 tons.

Of the planned $92.4-million investment, the state will contribute only $8.8 million. Paper industry expansion plans call for expanding 21 existing production units, building 22 others.

WHEREVER YOU ARE... THERE'S A DISTRIBUTOR OF DU PONT METHANOL READY TO SERVE YOU

CALIFORNIA
Los Angeles ..... Braun Corporation
San Francisco ..... Braun-Knecht-Heimann Co.

COLORADO
Denver ..... The Chemical Sales Co.

FLORIDA
Jacksonville ..... Apperson Chemical, Inc.
Miami ..... Biscayne Chemical Labs., Inc.
Orlando ..... Lenfestey Supply Co.
Tampa ..... Lenfestey Supply Co.

GEORGIA
Atlanta ..... Chemical Services, Inc.

ILLINOIS
Chicago ..... Central Solvents & Chemicals Co.
Chicago ..... Phillips & Martin Co.

INDIANA
Ft. Wayne ..... Hoosier Solvents & Chemicals Corp.
Indianapolis .. Hoosier Solvents & Chemicals Corp.

KANSAS
Wichita ..... Barada & Page, Inc.

KENTUCKY
Louisville ..... Dixie Solvents & Chemicals Co.

LOUISIANA
New Orleans
Southeastern Solvents & Chemicals Corp.

MARYLAND
Baltimore ..... Leidy Chemicals Corp.

MASSACHUSETTS
Boston ..... Howe & French, Inc.

Du Pont chemical experience is the reason...

You can count on prompt delivery of high-quality Du Pont Methanol any time, any place

Du Pont — producer of methanol for 30 years — has set up a nationwide network of distributors equipped to supply your needs.

HERE'S a basic chemical that might be of use in your development or processing work. Methanol is one of the most versatile and reactive of all alcohols — can be oxidized to formaldehyde, decomposed to provide a source of hydrogen and carbon monoxide, or used as a solvent. Whatever the application, you can rely on Du Pont Methanol to meet your most exacting specifications — it's a product with over 3 decades of successful industrial use.

To keep pace with the growing demand for this basic chemical, Du Pont Polychemicals Department works closely with a group of suppliers strategically located throughout the country. These Du Pont Distributors are aware of your local transportation problems, have the equipment, the manpower to assure deliveries timed to meet your schedules.

Your local distributor can guarantee highest purity and uniformity in the quantities you need — drums, tank trucks or tank cars. And Du Pont Technical Representatives are always available for assistance through any distributor listed below.

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

FORMULA:

CH_3OH

SPECIFICATIONS:

Purity Exceeds	99.85%
Distillation Range*	1.0°C. Maximum
Non-volatile Content	0.001% Maximum
Acetone Content	0.003% Maximum
Acidity or Alkalinity	0.003% Maximum
Color A.P.H.A.	5 Maximum
Odor	Free from foreign odor
Permanganate Test	30 Mins. Minimum

*ASTM Method D-268

(All percentages on weight basis)

POLYCHEMICALS DEPARTMENT

MICHIGAN
Detroit.....Western Solvents & Chemicals Co.
Grand Rapids
Wolverine Solvents & Chemicals Co.

MINNESOTA
St. Paul.....Lyon Chemicals, Inc.

MISSOURI
Kansas City.....Barada & Page, Inc.
Kansas City....Missouri Solvents & Chemicals Co.
St. Louis.....Missouri Solvents & Chemicals Co.

METROPOLITAN NEW YORK
Lyndhurst, N. J.....Stoney-Mueller, Inc.

NEW YORK
Binghamton..... Collier Chemicals, Inc.
Buffalo.....Chemical Sales Corp.
New York.....Stoney-Mueller, Inc.
Rensselaer.....Eastern Chemicals, Inc.
Rochester.....Chemical Sales Corp.

NORTH CAROLINA
Durham.....Cardinal Products, Inc.

OHIO
Cincinnati.....Amsco Solvents & Chemicals Co.
Cleveland .....Ohio Solvents & Chemicals Co.
Toledo .....Toledo Solvents & Chemicals Co.

OKLAHOMA
Tulsa.....Ward & Kimball Chemical Co., Inc.

OREGON
Portland.....Van Waters & Rogers, Inc.

PENNSYLVANIA
Pittsburgh .....Vitro Manufacturing Co.

TENNESSEE
Memphis.....Chapman Chemical Co.

TEXAS
Dallas .....Texas Solvents & Chemicals Co.
Dallas..... Van Waters & Rogers, Inc.
Houston.....Texas Solvents & Chemicals Co.
Houston.....Van Waters & Rogers, Inc.

UTAH
Salt Lake City.....Braun-Knecht-Heimann Co.
Salt Lake City.....Wasatch Chemical Co.

WASHINGTON
Seattle.....Van Waters & Rogers, Inc.
Spokane.....Van Waters & Rogers, Inc.

WISCONSIN
Milwaukee..Wisconsin Solvents & Chemicals Corp.

Your cellulose is showing, Lady!

. . . and she should be glad it is

This lady wouldn't know pure cellulose if she saw it. But in her lifetime it has become the magic ingredient in products all about her . . . products remarkable for their beauty, strength and versatility.

That telephone, like other plastics, uses cellulose. The wrinkle-resistant rayon in her dress; the strong, flexible rayon in her draperies and carpets—they're made from cellulose. It's everywhere she looks: in cellophane, tires, camera film, golf clubs, paints, lacquers and fine writing papers.

Buckeye Cellulose Corporation pioneered this field. We were industry's first producer of cellulose, nature's magic ingredient from cotton and wood. And by constant research and cooperation with the industries that use cellulose, we are still pioneering—working with others to make countless good products better. Just let us know how we can serve you.

BUCKEYE CELLULOSE CORPORATION
General Offices: Memphis, Tenn. Plants at Memphis and at Foley, Florida

Buckeye
first in cellulose

Washington
Newsletter

CHEMICAL WEEK
March 2, 1957

The chemical industry has been invited to recommend changes in the useful life assigned to plant buildings and equipment for tax purposes. The Internal Revenue Service is revising its Bulletin F, which gives useful lives for some 600 pieces of machinery and equipment used by chemical process companies. Taxpayers can either suggest changes in the present listings, or can recommend useful lives for equipment not now included in Bulletin F. Suggestions should be sent to the Commissioner of Internal Revenue, Washington 25, D.C.

•

Salk vaccine manufacturers face investigation on price-fixing charges at the hands of a federal grand jury. The Justice Dept. will present evidence in an effort to obtain indictments. The inquiry may begin in Washington, D.C.

Congressional hearings on the Salk situation last year turned up charges of illegal price-fixing and "excessive prices" charged to federal and state agencies. Rep. Henry S. Reuss (D., Wis.) has requested Justice Dept. investigation of alleged identical bidding and price-fixing in sales of vaccine to the city of Milwaukee.

Major firms producing antibiotics, on the other hand, are reveling in praise received from Federal Trade Commission antitrusters. FTC's chief economic investigator, Quincy Adams, thanks the firms for their "open door cooperation" with a team of 11 FTC economists now back in Washington from extensive visits to company offices and plants.

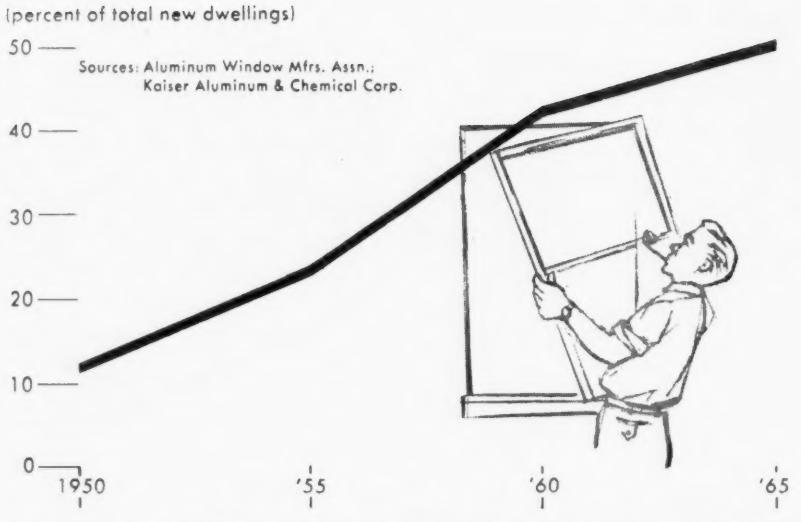
But Adams paid the compliment less to boost the industry than to stop rumors that his study is "dragging."

More important: FTC may broaden the probe, take a deeper look at pricing policies. One reason: complaints that company detail men are overgenerous in giving doctors free samples of costly antibiotics. FTC economists suspect this promotion may be too substantial a factor in the present high cost of the drugs.

•

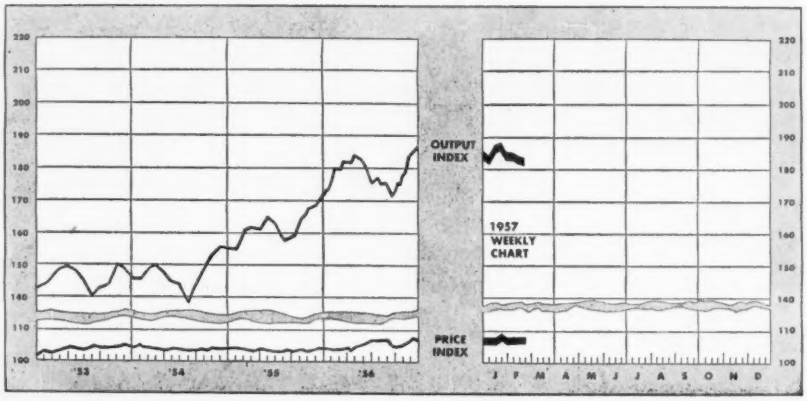
U.S. steroid producers are finding it easier to operate in Mexico, where government decrees had blocked access to barbasco root, cheapest source yet for drug raw materials—or at least so says the Senate Patents Subcommittee. In a report this week, the group cites "well substantiated reports that with the advent of new producers [in Mexico], a more competitive atmosphere prevails. Prices on at least some of the various intermediates have been reduced." A federal grand jury in New York is looking into monopoly charges against Mexico's Syntex, S.A. (a subsidiary of New York's Ogden Corp.) arising from complaints of U.S. drug firms at last July's subcommittee hearings (*CW, July 14, '56, p. 20, Nov. 24, '56, p. 22*).

Charting Business



Windows: Wide-open Market for Aluminum Sellers

THE future of aluminum window frames appears bright. Sales are moving briskly; retail value this year should hit $1 billion. In 1950, only 12% of new houses were built with aluminum window frames. By '65, at least 50% of all resident construction will use aluminum frames rather than those made of wood or steel. Commercial and institutional buildings show an even greater preference for this lightweight, easy-to-care-for material. By '65, as much as 75% of all such new buildings will have aluminum window frames.



BUSINESS INDICATORS

WEEKLY	Latest Week	Preceding Week	Year Ago
Chemical Week Output Index (1947-49=100) . . .	183.0	183.2	182.0
Chemical Week Wholesale Price Index (1947=100)	108.6	108.7	105.3
Stock Price Index of 11 Chemical Companies (Standard & Poor's Corp.)	406.5	399.9	471.3

MONTHLY Trade (million dollars)	Manufacturers' Sales			Manufacturers' Inventories		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All manufacturing	28,653	28,672	27,289	51,427	51,340	45,923
Chemicals and allied products	2,098	2,095	1,959	3,691	3,703	3,199
Petroleum and coal products .	2,662	2,682	2,495	3,136	3,089	2,731

Only Continental offers you

Perma-LINED

steel containers for hard-to-hold products

Your chemical, paint and petroleum products travel with greater safety in Continental's exclusive Perma-Lined steel containers. That's because specially-formulated Perma-Lining enamels are airless hot-sprayed and baked right in the formed container. Every last inch of inside surface—even side and bottom seams—gets complete uniform coverage.

In addition to product protection, Perma-Lined containers give you eye-catching lithography by Continental craftsmen. And, if you ever need research or engineering help, it's available as part of our steel container service.

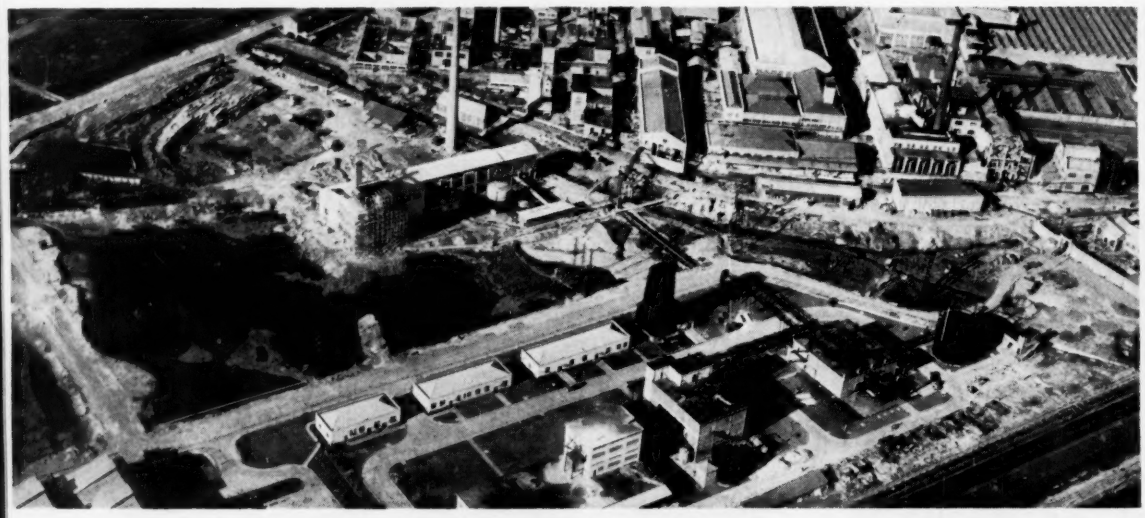
Let Continental's Perma-Lined containers work for your hard-to-hold products. Call soon.

PERMA-LINED CONTAINERS TO FIT EVERY PRODUCT

Perfected by Continental's Research and Development Center in Chicago —and backed by our vast experience in all types of metal packaging—Perma-Linings are available to fit almost every chemical, paint and petroleum product. Moreover, we are prepared to develop new Perma-Linings for your special use.

CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd St., New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4



Integration of its chemical production complex with

The Many Sides of Brazil's Matarazzo

In its Sao Caetano chemical complex (above), the I.R.F. Matarazzo Co. makes caustic soda, chlorine, hydrogen, sulfuric acid, soaps, glycerine, carbon bisulfide, viscose rayon, transparent paper, glycols, benzene, BHC, hydrochloric acid, carbon tetrachloride, lime, calcium carbide, acetylene, vinyl chloride and PVC.

Though it uses imported sulfur and some purchased petroleum products, its own raw material sources—cotton, eucalyptus (above, right), salt (above, far right), refinery products (center) and limestone (center, right)—make Matarazzo so basic in chemicals, U.S. firms consider it a logical partner for ventures in Brazil.

Though Brazil moves doggedly toward a chemical self-sufficiency that is causing a lessening of U.S. sales (*CW, July 7, '56, p. 30*), U.S. chemical processors have a new opportunity to regain a share of the lucrative market there.

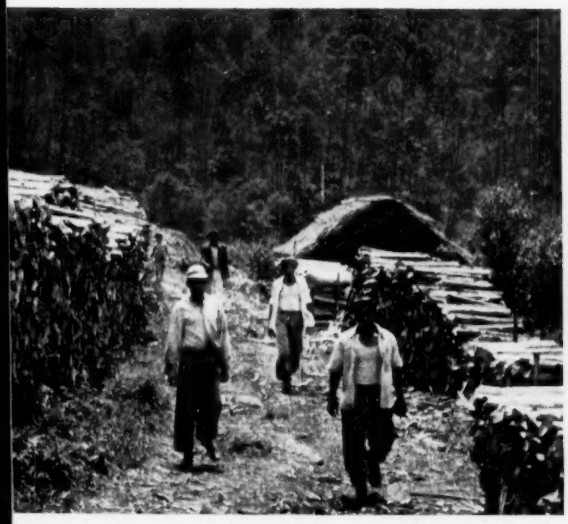
The opportunity comes by way of a $28-million/year organization, itself intent on becoming the major supplier of chemicals and allied products in Brazil—Industrias Reunidas Francisco Matarazzo Co.

Long a Brazilian landmark and almost a socioeconomic institution with its 288 factories, the Matarazzo complex is just now beginning to shove its production and financial weight into the business of producing chemicals—an area that, by '62, should account for two-thirds of the company's sales. And Matarazzo wants "foreign aid"—in the form of engineering licenses and capital investment—to speed its chemical growth.

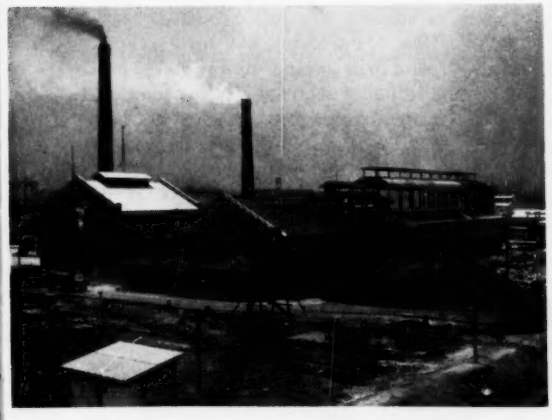
Until recently, the company used 85% of its chemical production to supply its own needs, but now it's hitting the Brazilian market with a long list of chemical products produced almost entirely with company-supplied raw materials (*see above*) and transported for the most part in company-owned conveyors.

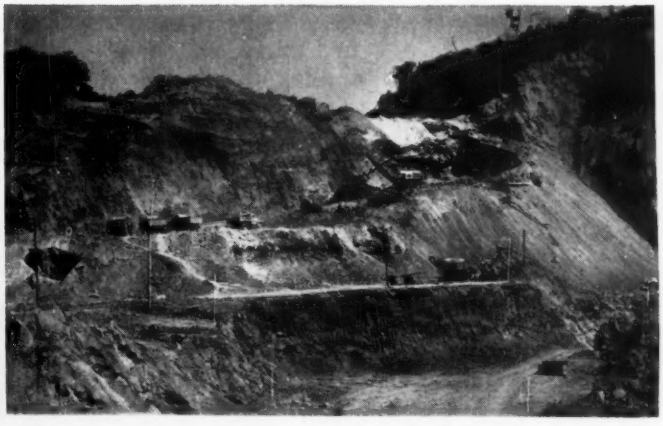
Import Stoppers: To show what has happened to certain Brazilian chemical imports once the São Paulo company entered local production, its officials point to this impressive list: in 1950, caustic soda production got under way, cutting yearly imports by $2 million; in '51, benzene hexachloride insecticide production started, eliminating $500,000 worth of yearly imports; and in '55, polyvinyl chloride was added to the company's growing list of products, saving the country 1.5 million import dollars. In addition, Matarazzo—which enjoyed a $10-million profit in '55—produces most of the viscose rayon and cellophane consumed in Brazil.

Future plans call for production—and a consequent cut in imports—of several glycol compounds, carbon tetrachloride and other chlorine derivatives, benzene, petroleum coke,



. wide spectrum of raw material operations show . . .





and other petrochemical-derived products such as synthetic rubber and more lines of plastics.

Beginnings in Chlorine: Matarazzo's start in other-than-captive chemicals came when it had to consider disposal of chlorine produced concurrently with caustic soda for its rayon operations.

And so, Norberto Lederer (*cover*), now chemical production chief, was employed to find products to use up the chlorine.

One obvious use for part of Matarazzo's excess chlorine was in PVC, since plastics is the fastest-growing branch of Brazil's chemical industry. And with its step into PVC production, Matarazzo slowly began to change from its policy of a tightly held, self-sufficient organization to one of working with other firms on a basis more familiar to U.S. corporations.

In determining the kind of PVC production it should have, Matarazzo found that local buyers preferred Goodrich's Geon; and after some dickering, the two companies made a deal—swapping Goodrich know-how, brandname and engineering supervision for royalties and a share in the new company, Geon do Brazil.

More Deals: With the Geon operation working smoothly, Matarazzo is making good use of its new-found knowledge in dealing with U.S. companies. Next step: a deal with Dow Chemical Co., similar to the Goodrich arrangement, to produce carbon tetrachloride and other chlorine derivatives, using Dow know-how.

There's no carbon tet production in Brazil at present, and Matarazzo's entrance into the field is expected to cut off all imports.

Another U.S. company mentioned as a possible Matarazzo partner is Olin Mathieson. A top OM chemical engineer has been hired to work at Matarazzo's Celosul chemical plant where carbon bisulfide is produced along with sulfuric acid, cellophane and staple fibers. OM officials have been invited for discussions.

In addition to the Goodrich and Dow licenses, Matarazzo reports

licensing agreements with Pechiney (France), for BHC; North American Rayon, for a high-tensile rayon process; and with Elektrokemisk (Norway), for a calcium carbide plant.

In addition, it's negotiating with Benckiser (Germany), for a process to improve citric acid production; and with Bayer (Germany), for production of polyacrylic and polyamide fibers in Brazil.

Petrochemical Growth: It is, however, in the area of petrochemicals that Matarazzo is really stepping out. The company spent more than $5 million in the past five years on chemical products expansion. During the next five years, the figure will be $10 million—mostly in the direction of petrochemicals and chlorine derivatives.

Initial petrochemical plans call for producing 5 tons/day of glycols, 10-15 tons/day of ethylene, 10-15 tons/day of benzene. A by-product of the benzene production will be petroleum coke, which has an excellent future in electrodes to be used in Brazil's budding aluminum industry.

Matarazzo's plans now have a definite go-ahead with the recent announcement by the National Petroleum Council that the government oil monopoly, Petrobras, will not monopolize petrochemicals.

Top-Level Executives: The present Matarazzo combine head, Count Francisco Matarazzo, Jr.—now taking it easy on doctor's orders—has kept the company in constant expansion using the old, strict and rigid family rules of vertical integration and self-sufficiency since his founder father's death 19 years ago. He has been absolute boss. But now this is changing. His sons, Ermelino and Eduardo, share in the responsibility of running the company. Contacts with such companies as Goodrich and Dow (by the family and by top employees such as Lederer) mellowed the family philosophy of doing business.

This is to the advantage of U.S. chemical producers who would like to enter the Brazilian market but are now barred by import limitations. As a top Matarazzo official puts it, "We need foreign know-how and capital equipment . . . to get it we are offering a corner on many raw materials, plenty of land, local financing, in many cases our own transportation, our own factories as guaranteed buyers, machine shops for repairs, and our know-how and sales units."

With this kind of bargaining material, Matarazzo hopes to gather enough foreign chemical company participation to emerge some day as one of the biggest chemical producing combines in this hemisphere.

LABOR

Picketing Professionals: Process management men who've been wondering about the effects of unionization of engineers and scientists are watching the current dispute between American Telephone & Telegraph's Western Electric Co. and the Council of Western Electric Technical Employees—National, an independent union that represents 6,700 engineering employees at various WE plant locations. Latest contract expired in Nov. '55, and negotiations for a new pact have been deadlocked since before that date over the union's demand that the company adopt a formal code specifying qualifications to be required for assignment to the positions within the union's collective bargaining units. Management's position is that it has the right to make those assignments on the basis of ability, particularly when there's a shortage of engineering manpower. In the latest of several demonstrations, CWETE members from the Kearny, N.J., facility left their jobs shortly before lunch hour and picketed for several hours in front of company headquarters in New York (*see cut*). In accordance with a previous warning, the company then suspended the demonstrators for one day.

•

Delaware 'Right-to-Work': The next battle over state "right-to-work" laws is building up in Delaware, where chemical labor unions are making new efforts to gain a foothold. With sponsors from both political parties, a bill has been introduced in the state legislature's general assembly and assigned to a committee headed by the bill's principal sponsor. The measure would prohibit employer-union agreements requiring union membership as a condition of employment.

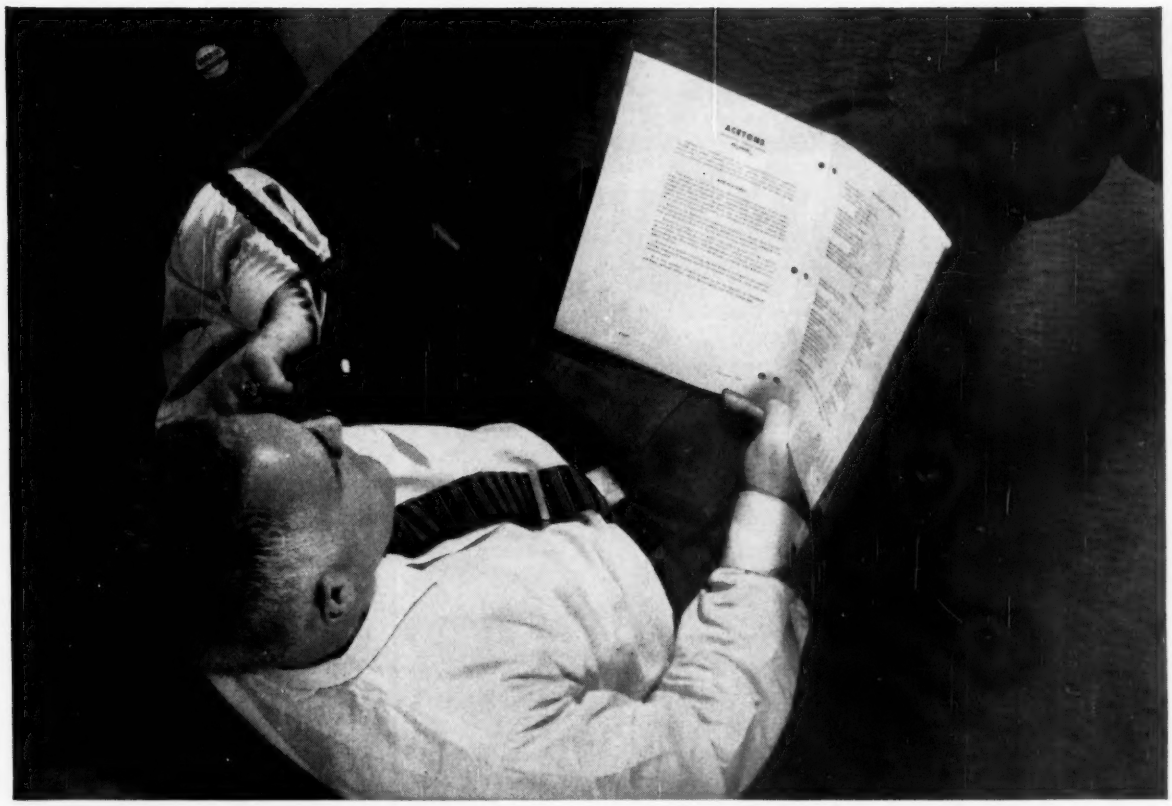
•

Wage Rises Coming: Regardless of recent warnings about possible economic effects of significantly higher wages, another round of pay rises is already under way. Latest settlements include a 6% general increase, plus a number of job rate adjustments, at Olin Mathieson Chemical Corp.'s plant near Brandenburg, Ky.; and a 10¢/hour increase, plus additional fringe benefits, at the Stauffer Chemical Co. plant at Hammond, Ind.

One factor in process industry bargaining will be the outcome of the new wage drive by the United Rubber Workers (AFL-CIO).

WIDE WORLD

ENGINEERING PICKETS: In dispute over job qualifications, a protest.



You Can RELAX when you order CARBIDE's Acetone

No worries about acetone delivery from CARBIDE

You get it how and when you want it: in tank cars or compartment tank cars—in tank trucks—in carload or LCL lots of 55-gallon drums; stocked in warehouses and bulk storage centers in strategic industrial areas.

You can be sure it's highest quality acetone

Over 99.5% pure—uniform quality; produced synthetically for more than 26 years.

Place your ACETONE order with CARBIDE today

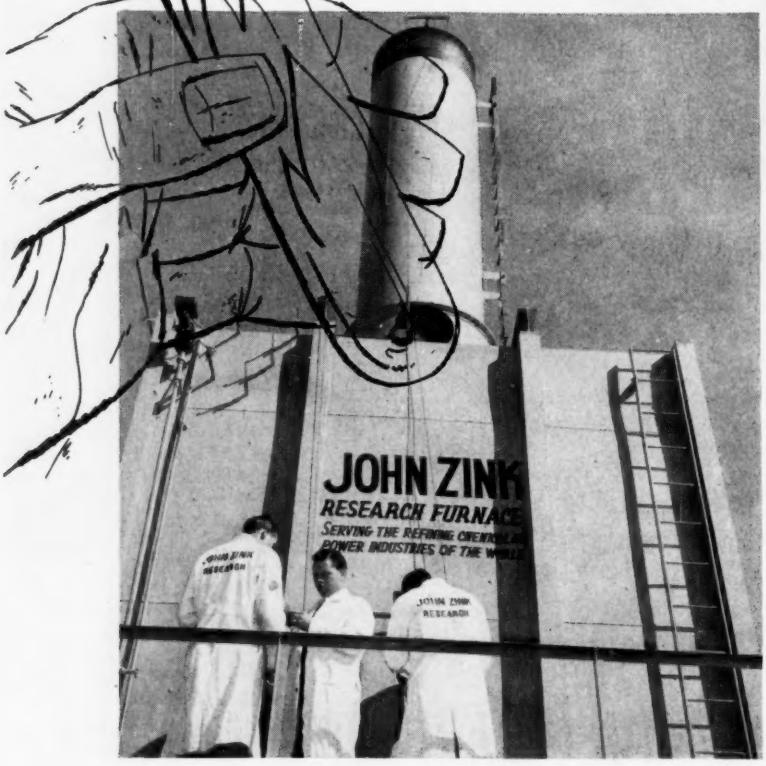
Just call any of CARBIDE's twenty-six sales offices for prices and technical information. Ask for the acetone data folder, F-8650. In Canada: Carbide Chemicals Company, Division of Union Carbide Canada Limited, Montreal and Toronto.

CARBIDE AND CARBON CHEMICALS

Carbide and Carbon Chemicals Company
A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.

JOHN ZINK BURNERS

. . . scientifically tested and performance rated to do the job RIGHT . . .



This research furnace affords an ideal proving ground for design changes in standard lines of burners, as well as enabling the John Zink Company to find *workable* solutions to new problems. In this way the John Zink Company can offer you special burners for your individual application . . . burners that have been *performance tested* before they reach your job site.

→ *The facilities of the John Zink research furnace are available to industry.*

WE MAKE HEAT . . . AROUND THE WORLD

If you have a specialized industrial burner problem . . . JOHN ZINK has the answer . . .

JOHN ZINK COMPANY

4401 SOUTH PEORIA TULSA 5, OKLAHOMA

ADMINISTRATION

LEGAL

First U.S. Pollution Action: Acting on the advice of a five-man hearing board (*CW, Jan. 5, p. 32*), Secretary of Health, Education & Welfare Marion Folsom has brought the first federal enforcement action under the Water Pollution Control Act.

The action forces oil-well operators along Arkansas' Corney Creek to stop discharging wastes into the creek, which flows into Louisiana.

•

More About Plastics: Rochester City Chemist John Temmerman is continuing his drive against misuse of plastics and other chemical products.

Still investigating plastic battery acid containers (*CW, Feb. 16, p. 32*), which he feels to be unsafe, Temmerman now reports a successful appeal to a manufacturer to replace certain parts of a child's toy. The toy has a clear plastic shell of nitrocellulose, considered highly flammable. The camphorlike liquid inside the shell, in which small toys are suspended, is said to be nauseating and possibly harmful if swallowed.

IDEAS

Sellers' Market: Difficulty in finding enough qualified men to fill an increasing number of executive jobs in expanding industries has led to what some specialists in executive recruitment are calling a "mad market" in executives. A recent American Management Assn. survey of executive recruitment practices in 437 companies indicates that only 14.6% of U.S. companies fill all (or nearly all) executive positions through promotion of present employees. On the other end of the scale, 16.5% of companies reported that they've been filling more than 30% of all their executive openings by recruitment from outside the corporate organization. The larger the firm, the less likely it is to hire executives from outside, AMA reports.

•

Managerial Plaudits: Though there's some dispute about the accuracy of the point-score ratings of the American Institute of Management, it's still of industry interest that a chemical process firm—Procter & Gamble Co. —has been cited by AIM as "the best-managed company in the U.S." for 1956. The institute reports that

P&G—which has landed in AIM's annual list of 10 top-ranking companies each year since this listing was started in 1951—scored 9,530 points out of a possible 10,000.

Regional Headquarters: As part of its $60-million expansion at Lake Charles, La. (*CW, Feb. 2, p. 21*), Petroleum Chemicals, Inc., will construct a two-story, structural steel office building as regional headquarters for its operating and engineering department staffs. Cost: upward of $500,000; completion date: early 1958.

KEY CHANGES

Charles W. Mitchell, to vice-president and general manager of Nyotex Chemical Division, Stauffer Chemical Co.

W. Earl Dunn, to vice-president and general manager, Chemical Plants Division, Blaw-Knox Co. (Pittsburgh).

Harold K. Latourette, to manager of organic research and development, Becco Chemical Division, Food Machinery and Chemical Corp.

Henry P. Zari, to executive assistant and vice-president, Carnegie Chemical Mfg. Corp. (Los Angeles).

William B. Stillman, to administrative research coordinator; and **Kenyon J. Hayes,** to director of chemical and biological research, Norwich Pharmacal Co. (Norwich, N.Y.).

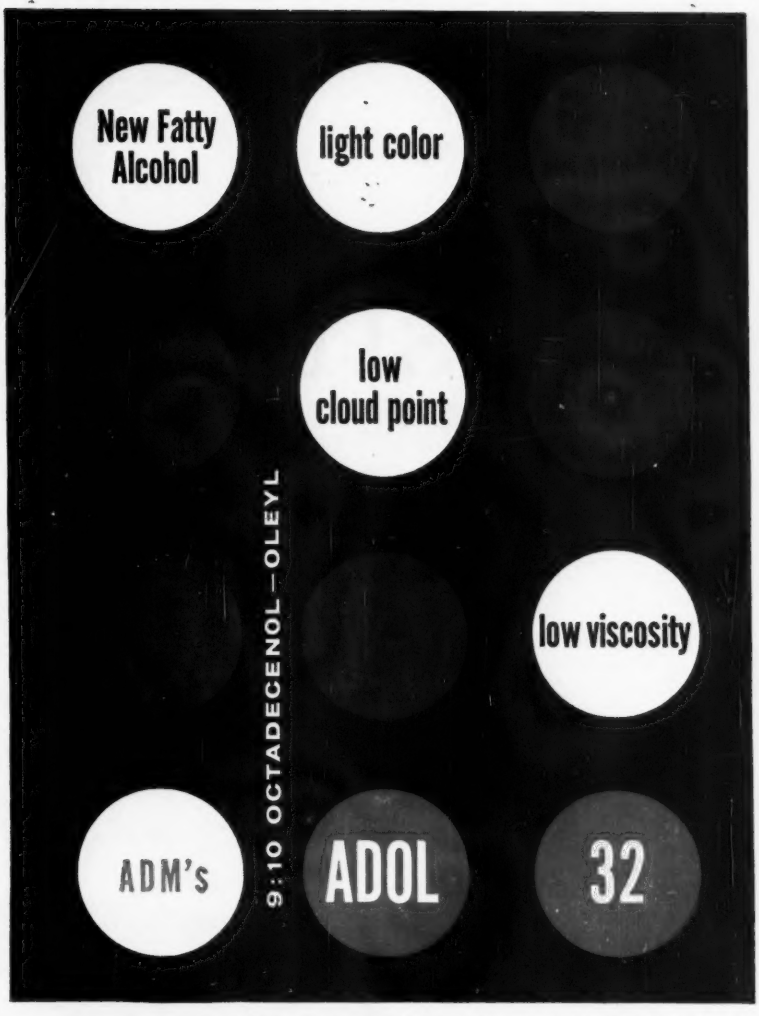
Frank Maxey, to products manager of agricultural chemicals, Frontier Chemical Co. (Wichita, Kan.).

Donald A. Doheny, to assistant to the president, Vestal Laboratories (St. Louis).

Frank W. Hurd, to director of research, Union Carbide Nuclear Co.; and **H. T. Ross,** to vice-president, engineering, Linde Air Products Co.; divisions of Union Carbide and Carbon Corp.

KUDOS

To **Clifford F. Rassweiler,** board vice-chairman, and vice-president in charge of research and development, Johns-Manville Corp., the Chemical Industry Medal for 1957 of the American Section of the Society of Chemical Industry.



Hydrofol PRODUCTS

Hydrogenated and Distilled Fatty Acids and Stearic Acid . . . Hydrogenated Vegetable, Fish, Sperm Oil and Tallow . . . Hydrogenated Castor Oil . . . Stearyl, Cetyl, Oleyl Alcohol . . . Sperm Oils and Spermaceti . . . Behenic Acid . . . Erucic Acid . . . Hydroxystearic Acid.

Chemifats that put SELL into your products

Want to test a high-quality liquid fatty alcohol with excellent color stability, low viscosity, and high chemical reactivity? Write ADM for a sample of ADOL 32, a straight chain unsaturated monohydric alcohol, essentially oleyl. Chemical reactive groups include one double bond and one hydroxyl group. This material is non-corrosive and soluble in a wide variety of solvents.

These characteristics make ADOL 32 ideal as an emollient, a super-fatting agent, and a compound for detergents. Other possible applications—chemical intermediates, surfactants, soaps, germicides, emulsifiers, resins, plasticizers, textiles, lubricating oil additives, cutting oil bases and sulfonates.

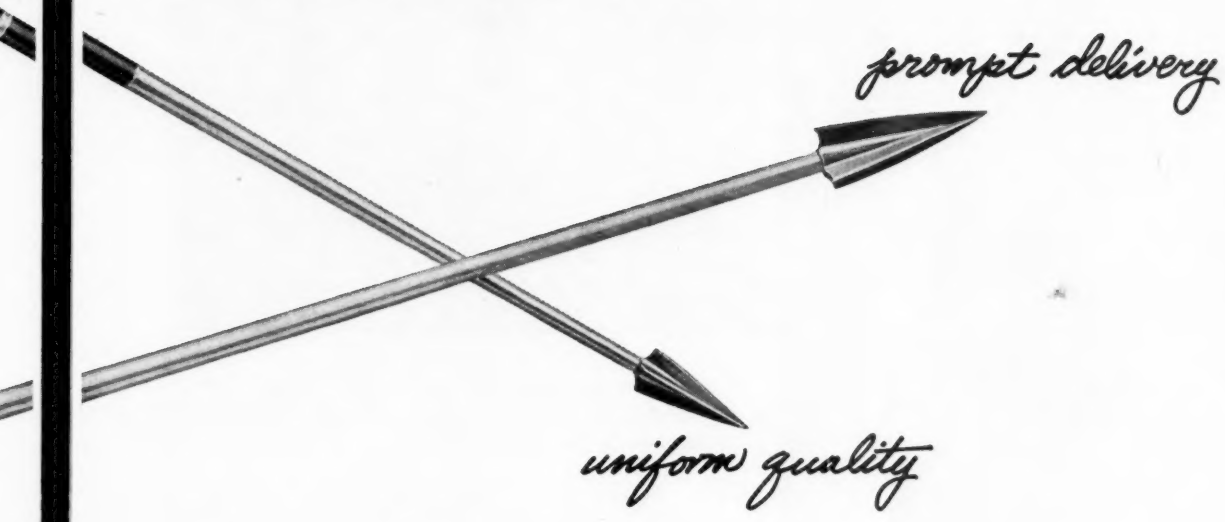
ADOL 32, as well as thirty new fatty alcohols (many never before available), is being produced at ADM's new Ashtabula, Ohio, plant. Warehouse stocks are being maintained for immediate shipment in drums or tank cars. Be sure to keep posted by writing for our latest Chemical Reactions Bulletin No. 907R and Specifications Bulletin No. 908A.

Archer·Daniels·Midland company
CHEMICAL PRODUCTS DIVISION
2191 WEST 110th STREET • CLEVELAND 2, OHIO

straight as an

steady supply

arrow . . .



YOU CAN DEPEND ON PUBLICKER

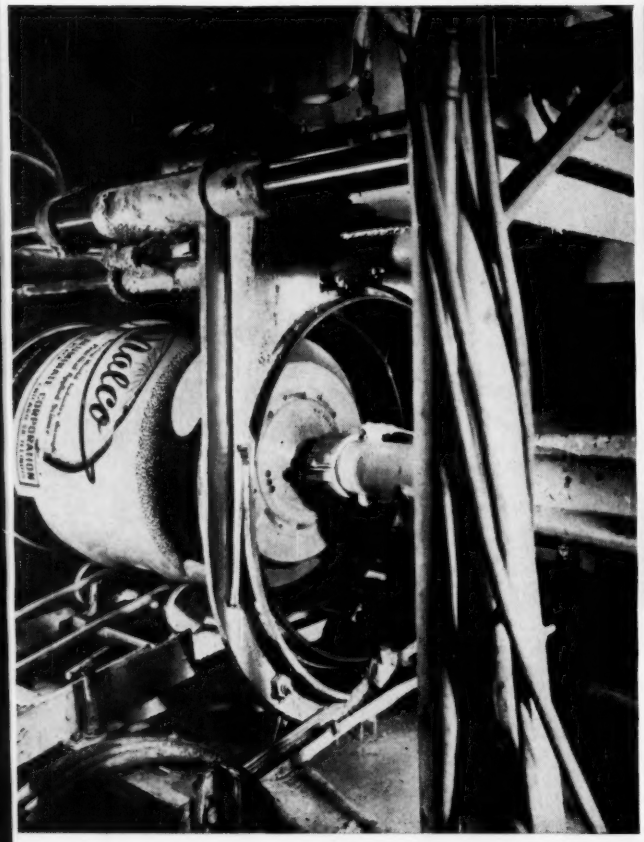
ETHYL ALCOHOL	ACETALDEHYDE
ETHYL ACETATE	ACETIC ACID
BUTYL ALCOHOL	AMYL ACETATE
BUTYL ACETATE	REFINED FUSEL OIL
ACETONE	ISOAMYL ALCOHOL

PUBLICKER INDUSTRIES Inc.

1429 WALNUT STREET, PHILADELPHIA 2, PA.

NEW YORK • NEW ENGLAND • MIDWESTERN DISTRIBUTORS, PUBLICKER ALCOHOL & CHEMICAL SALES CORP.

PHILADELPHIA—LOCUST 4-1400 • NEW YORK—OXFORD 5-4160 • BOSTON—HOMESTEAD 9-0022
CHICAGO—RANDOLPH 6-6678 • PITTSBURGH—POPLAR 6-3606



Innovations in drum production—centrifugal spray application of coating material and 'vertical position' drying—help get Rheem's . . .

New Drum Lining Process Off to Fast Start

Two new refinements in drum lining technology came to light last fortnight as Rheem Mfg. Co. disclosed details of its new coating and curing process for steel-container linings. Rheem's contributions: a centrifugal spray device for applying coatings and a "vertical position" curing oven. Rheem claims that its new process permits a high degree of quality control and improved protection of the drum's contents.

The centrifugal spray coating method utilizes a dynamically balanced disk spinning at more than 3,600 revolutions per minute. As the disk travels through a container (in horizontal position), a continuous curtain of atomized coating material is cast off at a controlled, uniform rate on both forward and return strokes.

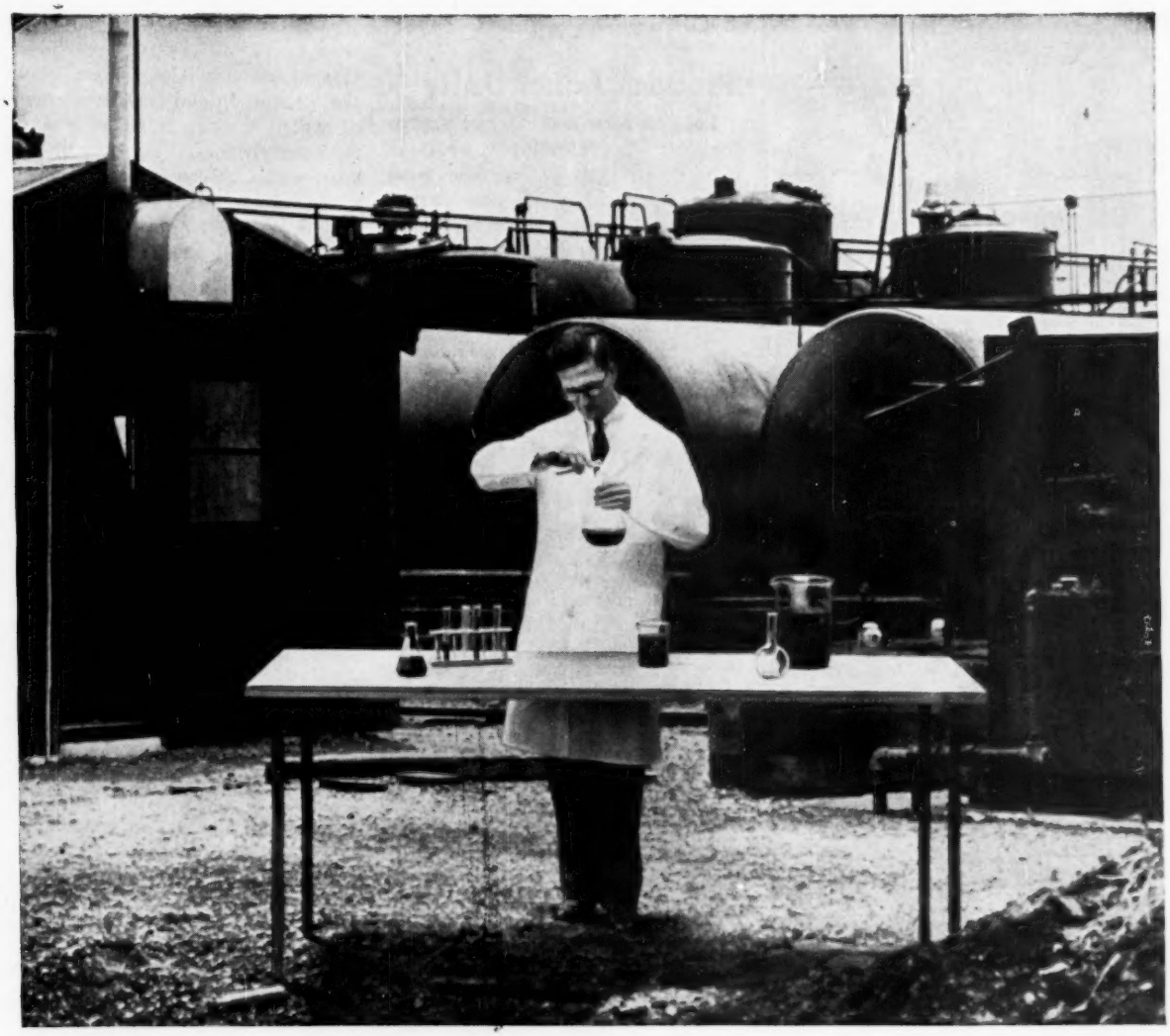
Because of the uniform distribution of the cast-off coating on the container wall, says Rheem, lining materials with "substantially lower solvent content" may be employed. Result: difficulties—such as pinholing and blistering—that occur in the evaporation of the solvent during the subsequent curing process are greatly diminished.

Elimination of uncontrolled air turbulence, another advantage claimed for the centrifugal spray method, prevents entrainment of atmospheric dirt, grease and dust into the lining material. Turbulence is avoided by rotating the container in a special way, eliminating air pressure. Spray results from the mechanical breakup of the liquid by a high-speed rotor.

Oven Bake: Along with its new coating method, Rheem is adopting a new type of oven to cure linings in drum bodies. Unlike conventional ovens, which accept drums in a horizontal position, Rheem's new unit takes container bodies in a vertical or upright position. This feature permits each drum shell to act as an auxiliary oven flue that allows a continuous flow of warmed air across the lining. The air stream, asserts Rheem, rapidly removes solvents in the coating material, thus eliminating porosity, blistering and condensation of volatile resin components.

Both spray and oven equipment have been designed to cope with wide variations in drying requirements and type of lining. A special oven for curing lined drum heads under conditions similar to that of the body cure has also been constructed.

Trade reception of centrifugally sprayed drums is, of course, yet to be determined. But Rheem is confident that the advantages it claims for the container process will give sales a winging start. Process equipment has already been installed in three plants, will soon be added at four others.



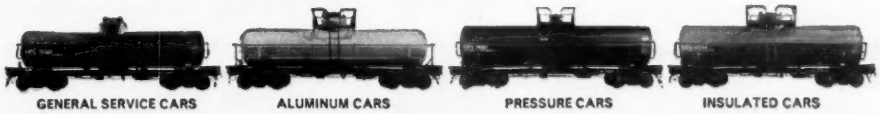
What's a chemist got to do with tank cars?

Liquid level—vapor action—types of linings—temperature factors—the presence of impurities . . . these are a few of the considerations which the chemist must evaluate. It's the chemist's job to see that bulk liquids are shipped in the cars equipped to carry his products. The knowledge gained from years of hauling liquids in bulk enables General American to meet the chemist's exacting requirements—to assure that corrosion of the cars will be minimized and product contamination prevented.

This skill and experience is part of every GATX lease . . . a lease that provides shippers with the most dependable service available for bulk liquid transportation. When you lease cars from General American, you avoid the need for capital investment as well as operating, servicing and maintenance problems.

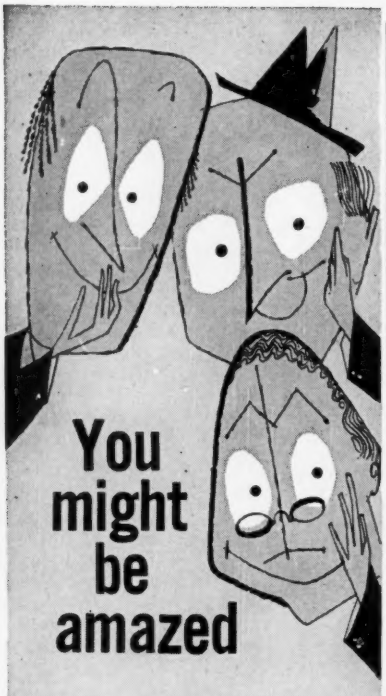
If you'd like additional information concerning the advantages of a GATX lease, call or write your nearby General American District Office.

It Pays to Plan With General American



GATX GENERAL AMERICAN TRADE MARK

GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South LaSalle Street • Chicago 90, Illinois
Service Offices In Principal Cities
Service Plants Throughout The Country



You might be amazed

Remarkably versatile Supergum H improves products, processes for thousands of manufacturers

This modified vegetable gum, prepared in the form of cold water-soluble powder, means many things to many manufacturers. Here are just a few of its many uses:

SOAPS, DETERGENTS—as a soil suspending agent added to the product or the laundry wheel.

PAPER—for sizing and coating. Compatible with other binders and fillers. Improves tensile strength and printability.

LEATHER—for pasting, or as a binder in finishes.

RESINS, PAINTS, LATEX—in combination with glues, starches, and gums, it gives good adhesion to cardboard, wallpaper, glass, aluminum surfaces.

CERAMICS—as a binder or foundry-core binder.

SPRAYS—as sticking agent or adhesive in insecticidal or other sprays.

COSMETICS, PHARMACEUTICALS—as a stabilizer and thickener.

Supergum H may improve your product or process, too! Write for test sample and further information. No obligation, of course.

JACQUES WOLF & CO. Chemicals PASSAIC, N.J.

Plants in: Clifton, N.J., Carlstadt, N.J., Los Angeles, Calif.

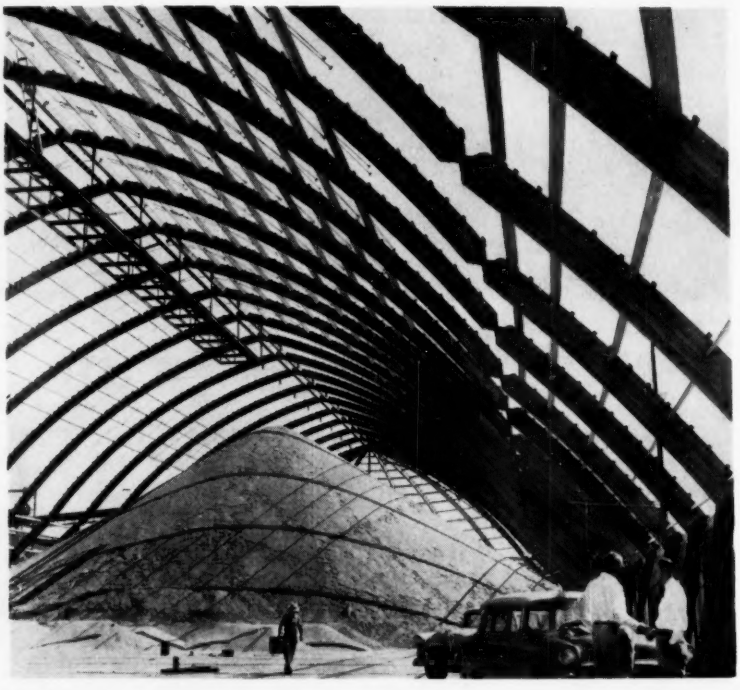
Prod for Label Unity

Look for some fancy United Nations footwork in the next few weeks to prevent two of its own agencies from going off in different directions on proposed worldwide safety rules for chemicals and other dangerous goods moving in international trade. On the agenda for this month's meeting of the UN Economic and Social Council is a recommendation from its Transport and Communications Commission to call in Secretary General Dag Hammarskjold to do some head-hammering.

The council is expected to urge Hammarskjold to talk to leaders of the International Labor Organization (a semiautonomous UN affiliate), have them put pressure on ILO's special committee on dangerous goods to compromise differences (on labeling, risk classification, etc.) with a similar committee of the council's Transport and Communications Commission. Both the commission and ILO have groups of experts working on shipping safety rules for chemicals. But they are far apart on several key points. Hammarskjold's intervention would ease fears of U.S. chemical firms that two conflicting codes of world safety rules are in the making.

ILO's governing body put off final action on its experts' proposals last summer, rescheduled the question for consideration at next month's ILO meeting. Hammarskjold may seek another postponement.

The Economic and Social Council, at its next meeting, will also weigh proposals to hire a consultant to study various countries' packaging requirements for dangerous chemicals, to substitute numerical code identification for verbal description of such chemicals; and put the commission's committee of experts on a permanent basis.

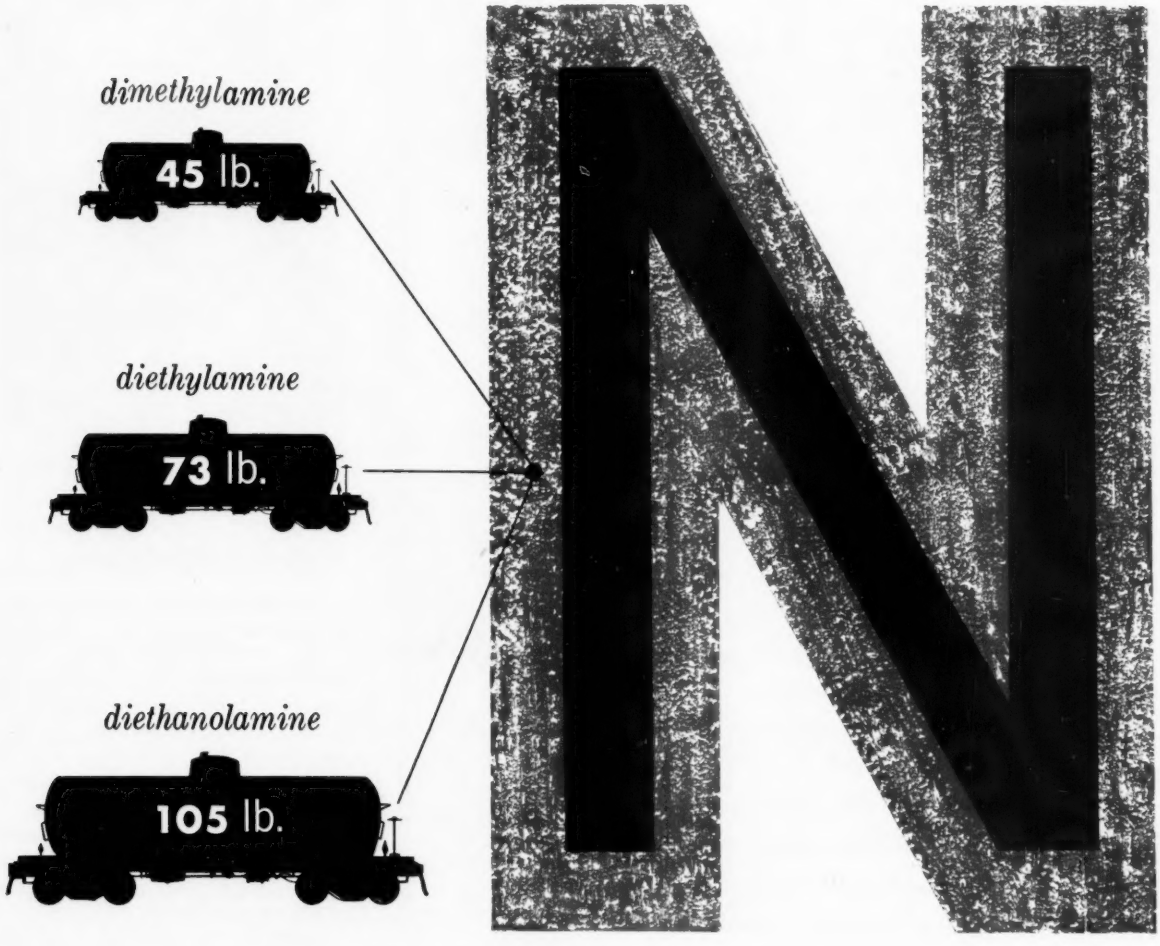


Wood Making a Comeback?

Extensive use of wood in chemical warehouse construction hasn't been popular for years. That's why Potash Co. of America's new Carlsbad, N. M., warehouse (*above*) is an eye-opener. The 580x180-ft. structure utilizes an arched design with timber buttresses anchored into a continuous pilaster wall that supports wooden arches.

The building, costing $550,000, was erected over an 80,000-ton pile of potash in about 6 weeks' working time.

WEIGHTS OF AMINES SUPPLYING EQUAL AMOUNT OF ORGANIC NITROGEN



METHYLAMINES your low-cost source of basic nitrogen

This comparison of dimethylamine with other amines proves a point that also holds true for monomethylamine or trimethylamine. With their low equivalent weights, Rohm & Haas methylamines supply organic nitrogen at substantially lower cost.

In addition, Rohm & Haas methylamines lend themselves to such a variety of reactions that their cost advantage may be utilized in many products. For example, they can be used as intermediates for producing rubber-vulcanization accelerators, herbicides, photographic developers, pharmaceuticals, quaternary ammonium salts, and surface-active agents. All Rohm & Haas methylamines are available in either aqueous or anhydrous form—in drums, cylinders, or tankcars. Write to Dept. SP for complete data.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

PENNSYLVANIA PLANT LOCATION DATA SERVICE

Special reports and tabulations, tailored to stated location requirements, will be prepared upon request by our engineering and economics staff from central data, files and direct sources, covering:

LABOR—Availability, skills, rates, surplus areas.

MARKETS—Consumer, industrial product, state, regional.

TRANSPORTATION—Water, rail, truck, air transit time, costs.

FINANCING—Community-state industrial building program, lease-purchase, commercial credit.

BUILDINGS—Availability, sizes, location, descriptions.

SITES—Acreage, topography, utility services, photos, maps, industrial districts.

MATERIALS—Metals, industrial chemicals, wood, textiles, farm products.

MINERALS—Location, reserves, potentials, analyses.

WATER—Quantitative, qualitative analyses.

POWER—Capacity, network, industrial service, costs.

FUEL—Coal, oil, natural gas service, costs.

ENGINEERING—Schools, enrollments, specialization, research laboratories, services.

TAXES—Inter-state and community comparisons, assessment ratios, millages, corporate.

COMMUNITIES—Characteristics, size, regions, housing, schools, culture, recreation.

Industrial Representatives Available For Inspection Tours, Conferences And Consultations

For free copy of "Plant Location Services" pamphlet, or for more details on 100% financing, write or call:

PENNSYLVANIA DEPARTMENT OF COMMERCE
Main Capitol Building, 489 State Street
Harrisburg, Pennsylvania
Phone: CEdar 4-2912

DU PONT'S BUCHANAN: Wins this year's CCDA. . . .

Kudos for Polyester

"For skillful planning and guidance of polyester fibers . . . ", Du Pont's Textile Fibers Dept.'s general manager, Andrew E. Buchanan, Jr., will receive this year's honor award of the Commercial Chemical Development Assn.

The honor award, made annually to recognize outstanding achievement in the development of major chemical enterprises, will be presented to Buchanan at CCDA's meeting in New York on March 28.

Specifically, the winner was chosen for his role in establishing Dacron fiber in the textile marketplace. Sales development of Dacron necessitated solving complex problems of integrated promotion at all marketing levels—manufacturing, weaving, garment making and retailing—plus promoting both the fiber and the end-product to the consumer.

DATA DIGEST

• **Terpene oxides:** Food Machinery and Chemical Corp.'s Becco Chemical Division is offering two new bulletins, one delineating properties of dipentene monoxide, the other giving data on α-pinene oxide. Applications are suggested in synthesis, plasticization, solvents, flotation agents, insecticides and other fields.

• **Sulfur:** Illustrated 48-p. brochure traces history of sulfur, provides data

on occurrence, use, production, chemical and physical properties, and the handling of the element. Stauffer Chemical Corp. (New York).

• **Catalog:** Booklet describes technical characteristics and applications of company's line of wetting agents, latex compounds for upholstery, carpets and foam rubber production, ultra-accelerators, rubber compounding materials, stabilizers and thickeners. Alco Oil & Chemical Corp. (Philadelphia).

• **Adhesives and coatings:** Data sheets give properties of polyvinyl methyl ether, methyl vinyl ether, maleic anhydride copolymer, polyvinyl isobutyl ether and polymethoxy acetal, briefly reviews use in compounding new adhesives and coatings. General Aniline & Film Corp. (New York).

• **Rubber standards:** Booklet, "Type Descriptions and Packing Specifications for Natural Rubber Grades Used in International Trade," gives standards for 36 grades of rubber commonly traded. The new code classifies as "International" types 24 varieties of natural rubber previously designated "RBA" types. Six varieties are classified as "RMA" types and six as "Singapore" types. Sealed samples of "International" and "RMA" grades will be available. Rubber Manufacturers Assn., Inc. (New York).

• **Chemical trucking:** 340-p. book contains information on tank-truck equipment and construction, operation and safety, asphalt transportation, refrigeration and insulation, economics, employee education and shipper-carrier relationships. The book is based on a series of lectures given at Michigan State University. Price: $10. National Tank Truck Carriers, Inc. (Washington, D. C.).

• **Container preservation:** 25-p. booklet gives Army Ordnance data on methods to maintain exterior surfaces of wooden shipping containers and legibility of identification symbols in long-term outdoor storage. PB 121666, 75¢, Office of Technical Services, U. S. Dept. of Commerce (Washington, D. C.).

• **German trade laws:** Book, "Trading Under the Laws of Germany," gives information on contracts, agencies, partnerships and corporations, industrial property, negotiable instruments, bankruptcy, the court system and other topics. Price: $3.50. German-American Trade Promotion Office (New York).

PICK-UP PACK...
ONE-TON SIZE

Each of these Drumpak corrugated containers holds 2000 lbs. of bulk granular chemicals. This same amount was formerly packed in 20 hundred-pound units. By consolidating his product in Drumpaks, this manufacturer reduced handling manhours by 80%. The Drumpak is easy to pick up, warehouse and load into freight cars.

Drumpaks are another Gaylord development. To learn how you can cut costs with any type of corrugated or solid fibre container, contact your nearby Gaylord office.

Gaylord Boxes

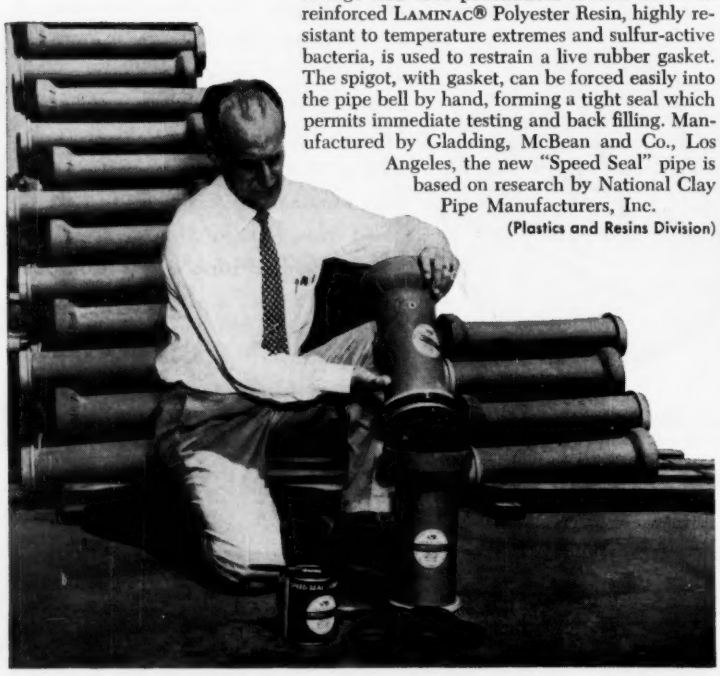
CORRUGATED AND SOLID FIBRE BOXES
FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES
KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS
DIVISION OF CROWN ZELLERBACH CORPORATION

Life ...on the Chemical Newsfront

LIVELIER DURABLE COLORS add appeal to new accessories for the home such as the sturdy but lightweight laundry basket shown here. Introduction of Cyanamid's CYAN Blue Toner XR 55-3760 has broadened the range of colors and brought to the makers of plastic and rubber products better color efficiency. This new Cyanamid pigment combines the well-known permanence and durability of Copper Phthalocyanine Blues with unique redness of shade and outstanding ease of dispersion. **(Pigments Division)**

NEW POLYESTER SEWER PIPE JOINTS speed installation and virtually end trouble with cracked joints caused by settling earth, corrosive sewage and root penetration. A cast collar of reinforced LAMINAC® Polyester Resin, highly resistant to temperature extremes and sulfur-active bacteria, is used to restrain a live rubber gasket. The spigot, with gasket, can be forced easily into the pipe bell by hand, forming a tight seal which permits immediate testing and back filling. Manufactured by Gladding, McBean and Co., Los Angeles, the new "Speed Seal" pipe is based on research by National Clay Pipe Manufacturers, Inc.
(Plastics and Resins Division)

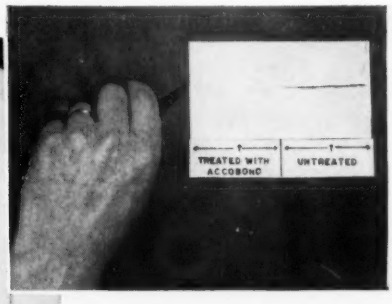


WASHING DIRT OUT, NOT IN, is the secret of new effective rug and upholstery detergents. The trick is to wet under and float off dirt and oils without saturating the fibers and soaking the dirt in "to stay." Limited wetting action at room temperature makes AEROSOL® 22 Surface Active Agent ideal for use in dry and wet types of rug and upholstery cleaners. Its efficiency as a detergent is aided by high tolerance to hard water and excellent foaming properties. Low percentages can be absorbed onto sawdust or other fillers — or incorporated into filler pastes or liquid formulations. **(Industrial Chemicals Division, Dept. D)**

A WIDER RANGE OF COLORS FOR DACRON† polyester fiber and more uniform shades on acetate are now possible thanks to a new Cyanamid dye-bath additive. CYANATEX® Dyeing Assistant EM, acting as a carrier, increases the diffusion rate of dispersed dyes under practical dyeing conditions. The results are improved color value, reduced dyeing time and lower temperature requirements. Relatively non-toxic, CYANATEX Dyeing Assistant EM is an emulsion which dilutes directly into prepared dye baths and requires no bath adjustments, solvents or other additives. **(Organic Chemicals Division)**

†Trademark of E. I. du Pont de Nemours & Co. (Inc.)

PLATINUM IS BOOSTING OCTANES in a refining process utilizing Cyanamid's AEROFORM® PHF Platinum Catalysts in the reforming of petroleum naphthas to high-octane fractions. Originally developed to produce war-scarce aromatic chemicals, catalytic reforming is now proving a boon to refiners in meeting the challenge of high-compression engines. Working with refiners and utilizing its own basic research facilities, Cyanamid is continuously developing the physical and catalytic characteristics of AEROFORM and other catalysts to keep pace with the dynamic technology of the petroleum industry.
(Industrial Chemicals Division, Dept. D)



IMPROVED ADHESION of refrigerator enamel to steel is one application of surface treatment to promote better bonding of paint, lacquers, plastics and other surface coatings. Cyanamid's new ACCOBOND® Bonding Agents are water-soluble resins used to treat metal, leather, wood, concrete and other materials where they act to improve the adhesion of coatings by altering the characteristics of the surface. A typical scratch test used to evaluate adhesion is shown in the inset. ACCOBOND agents are applied as very dilute solutions, followed by oven or air drying. **(New Product Development Department, Dept. D)**

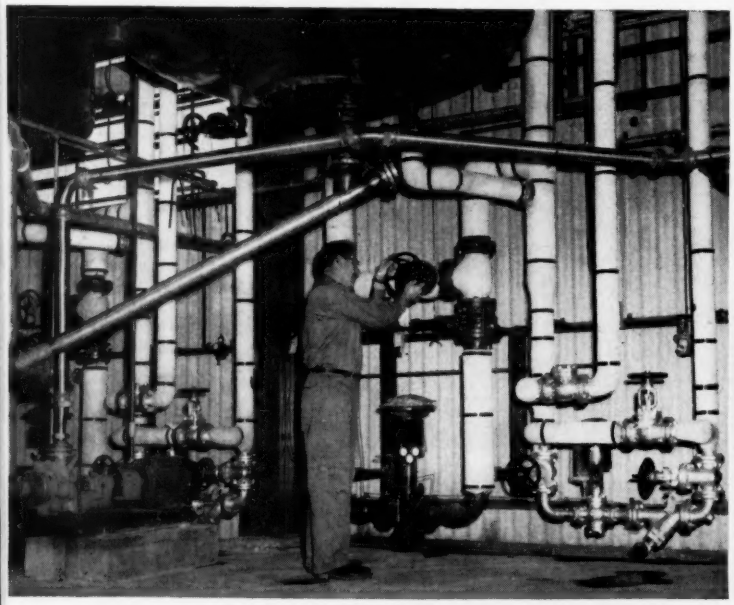
CYANAMID

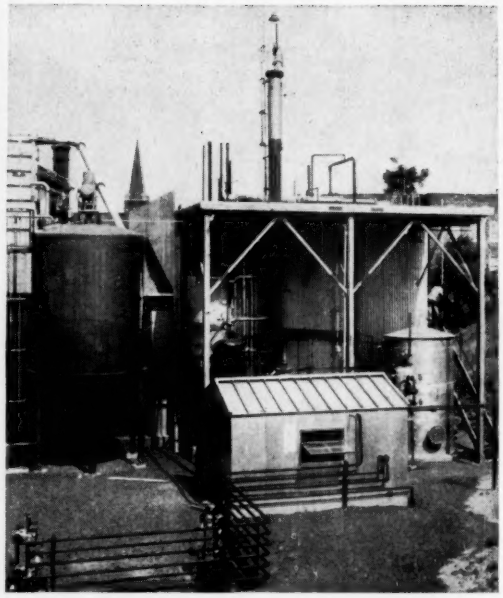
AMERICAN CYANAMID COMPANY
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Helping America Make Better Use of its Resources

50 CYANAMID 1907 1957

For further information on these and other chemicals, call, write or wire American Cyanamid Company





MILES APART but basically similar, SD-built plants (Borden's, left; Eleanora's, right) fit a . . .

New Pattern for Package PVC Plants

Chances are that the process operator (*left, above*) regulating a control valve in Borden Co.'s new polyvinyl chloride resin plant at Leominster, Mass., would have little difficulty locating its counterpart in the PVC unit (*right*) that Eleanora Chemical Corp. recently put onstream at Passaic, N.J. Although the plants are separated by almost 200 miles and are tailored to each company's specific needs, both are cut to the same general pattern—Scientific Design Co.'s basic design for package PVC plants.

SD began touting low-budget, 4- to 15-million-lbs./year package plants for small PVC processors soon after it had smoothed out new design features first incorporated in a European plant (*CW, Sept. 18, '54, p. 88*). Four of these package PVC units are in operation, a fifth is under construction in this country. First onstream here: General Tire's $6-million, 25-million-lbs./year plant at Ashtabula, O. Second: Thompson Chemical Co.'s North Dighton, Mass., plant.

Package Features: Included in SD's package offer: complete design of the plant, equipment specification and purchasing, construction (SD Plants, Inc., the company's construction arm, erected the Eleanora plant, is building another at Flemington, N.J., for Cary Chemicals, Inc.), trial production runs and actual startup of operation.

Special features of the process include the SD-developed suspension process that, the company claims, produces resin of higher purity than is yielded by the emulsion process. The system also incorporates a 25-ft.-long rotary dryer specially designed to improve drying of the dewatered resin, deliver the dried PVC pneumatically to a cloth-bag product collector on the roof.

An added innovation—first used in the Borden plant and incorporated in the original design of Eleanora's unit—is the use of sanitary piping (similar to that used in dairy plants) for handling resin slurry from the reactor.

Easier to take apart than conventional piping, the sanitary piping facilitates cleaning of resin slurry lines when stoppages occur. Smooth inner surface and wide-radius bends of sanitary fittings, moreover, have less tendency to plug than fittings of standard design.

Captive Sources: Borden's unit, which went into production late in '56, is geared to produce 12 million lbs./year of PVC for specialty resins, vinyl chloride lattices, and general-purpose products for calendering and extrusion. As a captive source of raw material, the package plant is the keystone of Borden's plan to duplicate on the East Coast its line of Resinite products, previously made only at its Santa Barbara, Calif., plant.

Thompson's plant, also onstream in '56, has the built-in flexibility needed to meet special requirements of plastics and automotive customers.

Entire 10-million-lbs./year output of Eleanora's package plant is earmarked for captive use of Pantasote, Inc. (Eleanora's corporate parent). Specially designed for flexibility of operation, the plant—with small modifications—can also produce such resins as polystyrene and vinyl copolymers, says SD.

Scheduled for startup this spring, Cary Chemicals' PVC installation will turn out 12 million lbs./year. Most of Cary's product will be channeled into PVC compounds for the wire and cable industry; small amounts will go into other Cary products or to other PVC compounders.

SURFACE-ACTIVE AGENTS

ALKATERGES

IN FOUR HOMOLOGOUS FORMS: ALKATERGE-C, -A, -E, AND -T.

CONSIDER THESE USES

EMULSION STABILIZERS

In oil-in-water emulsions, ALKATERGES or their soaps are effective as emulsion stabilizers or auxiliary emulsifying agents. Aid in the dispersion of insoluble calcium and magnesium soaps. Promising performance in the preparation of water-in-oil emulsions.

WETTING AGENTS

In reaction with mineral acids, ALKATERGES form water-soluble salts that produce stable foams. These salts, and the salts of lower monobasic organic acids, and of hydroxy acids are excellent wetting agents. With the higher fatty acids, ALKATERGES form oil-soluble soaps.

PENETRANTS

Solutions of the salts of ALKATERGES are useful as penetrants in textile, paper, metal cleaner manufacture. Reported to reduce resin consumption in the waterproofing of paper.

PIGMENT-GRINDING ASSISTANTS; PIGMENT DISPERSANTS

ALKATERGES convert stiff pigment-oil mixtures into fluid, easy-to-grind compositions. Also recommended in resin-carbon black formulations.

CORROSION PREVENTION

By neutralizing perspiration acids, the ALKATERGES protect metals subject to corrosion through handling.

DISPERSING AGENTS

ALKATERGES are recommended as dispersants for flattening agents in varnishes and enamels and for any finely divided solid in nonpolar liquids.

ANTI-OXIDANTS

ALKATERGES delay drying of film in a drying oil. Reported to reduce gum formation in a hydraulic oil system. Aid cleaning of a dirty system.

CLEANERS

Solutions of ALKATERGE salts are effective penetrants in metal cleaners.

ACID ACCEPTORS

Since most of their salts are somewhat oil soluble, ALKATERGES can be used to tie up acidity from deterioration of oils or of additives. Useful also as perspiration acid neutralizers in corrosion preventive oils.

ANTI-FOAMING AGENTS

Used alone or in carriers, ALKATERGES control certain foams encountered in processing organic materials such as manufacturing antibiotics. They do not turn rancid and are nontoxic to most antibiotic microorganisms.

Write, wire, phone or send coupon below. Complete information on the ALKATERGES will suggest many additional uses impractical to mention here.

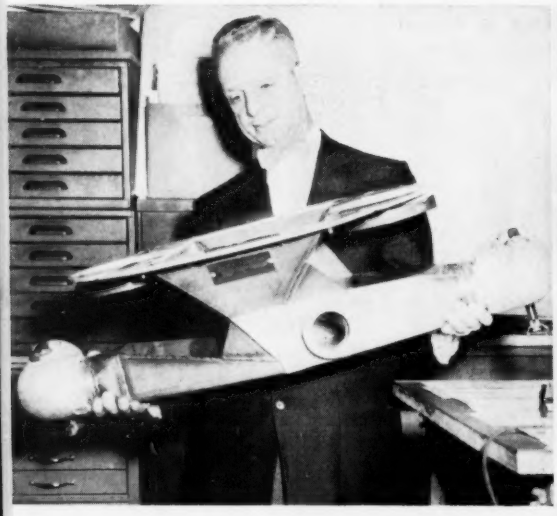
DISCOVER THE NITROPARAFFINS!

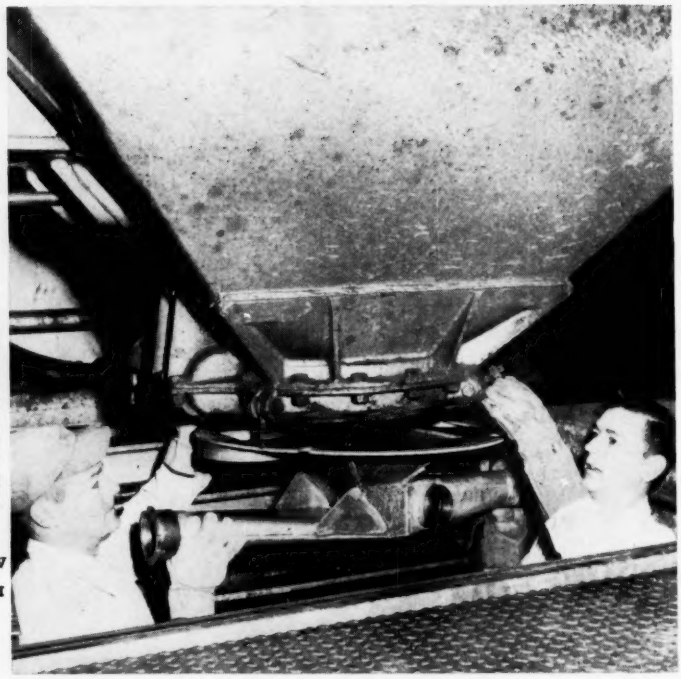
INDUSTRIAL CHEMICALS DEPARTMENT

COMMERCIAL SOLVENTS CORPORATION

260 MADISON AVE., NEW YORK 16, N. Y.

Boston • Chicago • Cincinnati • Cleveland • Detroit • Houston • Indianapolis • Kansas City • Los Angeles
Louisville • Memphis • Milwaukee • New Orleans • New York • Pittsburgh • St. Louis • San Francisco
In Canada: Reliance Chemicals, Ltd., Montreal. *In Mexico:* Comsolmex, S. A., Mexico 11, D.F.





ASC'S RAWLINGS (above) foresees new uses for versatile Liquilizer. Bolted to a hopper car (right), it offers a . . .

New Way to Serve Up Sugar

A new system for dissolving granulated beet sugar in industrial plants may soon find other chemical processing jobs. That, at least, is the hope of Amalgamated Sugar Co. (Ogden, Utah), the firm that developed it. Key to the system: a lightweight (25-lb.) unit called the Liquilizer, which unloads and dissolves the sugar simultaneously.

Like International Salt before it—with salt-dissolving Lixator*—Amalgamated Sugar worked out a system primarily as a service to its customers and, of course, as a means of boosting its own sales. Freight rates make the shipping of sugar solutions economically impractical beyond a distance of 100 miles or so; dry shipments require expensive blending equipment as well as high handling costs.

In tests, the Liquilizer has satisfactorily converted diammonium phosphate into liquid fertilizer. And, according to Frank Rawlings, ASC research director, preliminary investigations indicate that it will handle many soluble bulk materials with wide ranges of physical characteristics. It may even work with slurries, he thinks.

But ASC hasn't yet tried it out in very many uses. "We're a sugar company," says Rawlings. "We don't have the facilities to experiment and develop new uses for the equipment. Right now, we are negotiating with two or three firms to take care of the development for other fields."

How It Works: Containing no moving parts, the Liquilizer is a small hopper with a flanged top for attaching to the discharge port of a railroad car or truck. A flattened inlet pipe at the bottom of the hopper (*see cuts*) jets a wide, flat stream of liquid into the dry product falling through the hopper. A discharge pipe, at the opposite side, draws the solution away to storage. Breathers (covered with wire mesh and fabric) in the flange, assure product-flow from the car.

During unloading of a car of sugar, the quantity of water needed to make up the desired liquid-sugar concentration is metered into an agitated storage tank. The water is then pumped to the Liquilizer, where it picks up the sugar, and is sucked back to storage by a larger pump in the discharge line.

The system is self-regulating; no attempt is made to regulate the sugar flow—the car discharge gate is opened wide. Differential capacity of the two pumps sets the operating conditions. The constant suction of the starved larger pump drawing on the discharge line prevents water from backing up, seeping through the sugar dam in the hopper and back into the car.

The Liquilizer can be hooked up by one man. Once the pumps have been started and the discharge gate of the car opened, no further attention is needed until the car is empty. It takes about 5 hours to empty a 140,000-lb. car of sugar with a setup containing a 40-gpm. feed pump, 120-gpm. discharge pump. And, the Liquilizer has an additional advantage for sugar handling: it operates with cold water—the solution requires no cooling once it's in storage.

The system was developed by Rawlings, John Grantham, an ASC engineer at Ogden, and Charles Miller, plant superintendent at ASC's Portland, Ore., plant. Entire installation costs can be as low as $10,000 (average: $16,000 to $18,000). That's about one-

*The Lixator, which isn't used for unloading, is designed to deliver saturated brine. Water is passed down through rock salt to form the saturated brine, which is filtered as it passes through the undissolved salt bed. International Salt has never pushed the process for other applications.

COMPARATIVE RESULTS OF DRYING AIR

Test	Relative Positions in Series of Dehydrating Agents During Test*	Gain in Weight Grams	Moisture Adsorbed % of Total
A	1st—Activated Alumina	0.0778	99.9
	2nd—Calcium chloride	—0.001	— 0.1
	3rd—Sulfuric acid	±0.0000	0.0
	4th—Phosphorus pentoxide	0.0002	0.2
B	1st—Phosphorus pentoxide	0.0764	97.8
	2nd—Calcium chloride	0.0001	0.1
	3rd—Sulfuric acid	0.0002	0.3
	4th—Activated Alumina	0.0014	1.8
C	1st—Sulfuric acid	0.0853	95.2
	2nd—Activated Alumina	0.0042	4.7
	3rd—Calcium chloride	0.0001	0.1
	4th—Phosphorus pentoxide	±0.0000	0.0
D	1st—Calcium chloride	0.0698	95.1
	2nd—Sulfuric acid	0.0002	0.3
	3rd—Activated Alumina	0.0034	4.6
	4th—Phosphorus pentoxide	±0.0000	0.0
E	1st—Barium magnesium perchlorate	0.0931	90.2
	2nd—Phosphorus pentoxide	0.0054	5.6
	3rd—Activated Alumina	0.0042	4.2
F	1st—Activated Alumina	0.1061	99.0
	2nd—Barium magnesium perchlorate	—0.0017	— 1.6
	3rd—Phosphorus pentoxide	0.0032	2.6
G	1st—Phosphorus pentoxide	0.1110	94.8
	2nd—Barium magnesium perchlorate	—0.0009	— 0.8
	3rd—Activated Alumina	0.0070	6.0

*Weight of dehydrating agents employed:
Activated Alumina.....10.52 grams
Phosphorus pentoxide..... 2.50 grams
Sulfuric acid..... 7.24 grams
Calcium chloride.....10.27 grams
Barium magnesium perchlorate.....18.53 grams

This comparison test proves superior adsorptive capacity of ALCOA ACTIVATED ALUMINA

Efficiency of a drying agent can be tested by measuring how completely it removes water from a stream of air of given moisture content. The table above shows results of such a test made on a comparative basis with these desiccants: ALCOA® Activated Alumina; phosphorus pentoxide; sulfuric acid (96% C.P.); calcium chloride; and barium magnesium perchlorate.

The desiccants were placed in a series of U-tubes. High humidity atmospheric air was drawn through the tubes. This was repeated under comparable conditions for each of the arrangements of desiccants shown in the table.

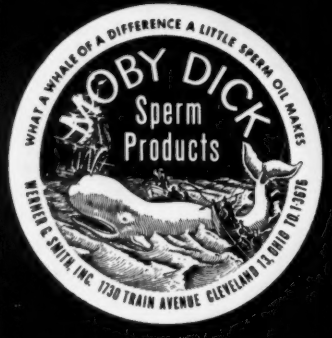
Study the test results. The superior performance of ALCOA Activated Alumina is clear!

In laboratory tests . . . as in hundreds of industrial drying applications . . . ALCOA Activated Aluminas have proved to be the most reliable commercial desiccants available. They dry to dew points below minus 100°F. They are nontoxic, chemically inert to most gases and vapors, and they will not soften, swell or disintegrate when immersed in water. They keep drying costs down because they can be reactivated an almost unlimited number of times with no serious drop in adsorptive efficiency.

Whatever you dry . . . gases, liquids or vapors . . . the effective, low cost solution to your drying problems is ALCOA Activated Alumina. Get detailed information today. Write ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 707-C Alcoa Building, Pittsburgh 19, Pa.

ALCOA ALUMINUM
ALUMINUM COMPANY OF AMERICA

THE ALCOA HOUR
TELEVISION'S FINEST LIVE DRAMA
ALTERNATE SUNDAY EVENINGS


WHAT A WHALE OF A DIFFERENCE A LITTLE SPERM OIL MAKES
MOBY DICK
Sperm
Products
WERNER G. SMITH, INC. 1730 TRAIN AVENUE CLEVELAND 13, OHIO TO 1-3676

MOBY DICK®

45 NW

SPERM OIL

Cloud	44 - 46°F
Pour	39 - 42°F
Iodine	80 - 90
Unsap. %	30 - 40
Saponification	132 - 140
FFA	2% max.

YEAR-ROUND AVAILABILITY

Cleveland Refinery — New York Storage

TWO SOURCES

Hydrogenated Sperm Oil

•

Blown Sperm Oil

IF YOU USE SPERM OIL, PLEASE CONTACT US.

Werner G. Smith Inc.

4902 Woolworth Bldg., N. Y. 7, N. Y.
Beekman 3-8215

1730 Train Ave., Cleveland 13, Ohio
TOwer 1-3676

PRODUCTION

third the cost of conventional handling and blending equipment.

Rawlings says the system is economical for firms using a minimum of 1 million lbs./year of sugar, will pay for itself in 2-5 years depending on the size of the installation and amount of sugar handled.

EQUIPMENT

Metals Progress: Special-purpose alloys and new fabricated forms of standard metals have been developed by four companies:

- International Nickel Co., Inc. is coming out with Incoloy "T"—a titanium-containing nickel-iron-chromium alloy designed to operate at temperatures up to 1400 F. Primarily intended for use in jet engines, Incoloy "T" has good oxidation-resistance at temperatures up to 1600 F. Also claimed: a good combination of formability and strength for fabrication.
- Dow is currently evaluating its new HM 21XA-T8 magnesium alloy, said to be the first magnesium-thorium alloy that can be heat-treated without suffering severe sheet distortion. High-temperature exposure tests indicate that the strength of HM 21 at 600-700 F is superior to that of the best aluminum or magnesium alloys currently available.
- American Silver Co. (Flushing, N.Y.) offers beryllium-copper strip 100% free of surface oxides. Available in 3/32- to 6-in. widths, thicknesses down to 0.0005 in., the oxide-free strip minimizes die-wear, says ASC, can be readily heat-hardened after stamping in the soft stage.
- Designers Metal Corp., (Harvey, Ill.) has developed an expanded metal with openings from 2½ in. to as small as 1/16 in. Dubbed Micromesh, it's made in either standard or flattened

Model City Miniature

The new $4-million commercial version of this model plant is the first full-scale facility in the U.S. and Canada to produce boron-10 isotope. Operated for AEC by Hooker Electrochemical Co. at Model City, N.Y., it's now turning out kilogram quantities of boron-10-containing metal and compounds for nongovernment use. Department head Allan Walker (*left*) and Hooker President Bjarne Klaussen discuss key fractionating columns in which boron trifluoridedimethyl ether complex is distilled to concentrate the isotope.

The final separation of boron-10 is carried out in five 3-ft.-diameter Hooker-improved electrolytic cells. Products contain 30-95% boron-10.

form, can be produced from aluminum, stainless steel, Monel or any standard sheet-metal stock.

•

Needle Pyrometer: Epic, Inc. (New York), is the U.S. distributor for the Pyromajor, a new needle-type indicating pyrometer for checking interior temperatures of rubber and plastics. Developed by Dunlop Rubber Co. Ltd. and Sifam Electrical Instrument Co. Ltd. (England), the unit's rapid-response thermocouple is encased in a stainless steel hypodermic needle fitted with a pistol-grip handle. A 4-ft. armored cable connects needle to 5-in. scale thermometer. Standard ranges: 0-100 C and 0-200 C.

•

Air Cleaning: Two companies have new air cleaning equipment:

• Raytheon Mfg. Co. (Waltham, Mass.) is out with a portable unit said to trap over 99% of dust, smoke, pollen, bacteria and other air-borne particles by electrostatic precipitation. Called Micronaire Mark II, it has a 150-cfm. capacity, operates on 115-volt ac., weighs 351 lbs., measures 19 x 19½ x 11 in.

• American Air Filter Co., Inc. (Louisville, Ky.), offers the Roll-O-Vent automatic filter for its line of heating, ventilating and air-conditioning units. Filter media is made of slightly curled, interlaced glass filaments bonded to form a continuous curtain, and impregnated with viscosine for operating temperatures to 150 F. Unit is timed to introduce fresh media periodically into the air stream. Filter spool will last about one year, says AAF.

•

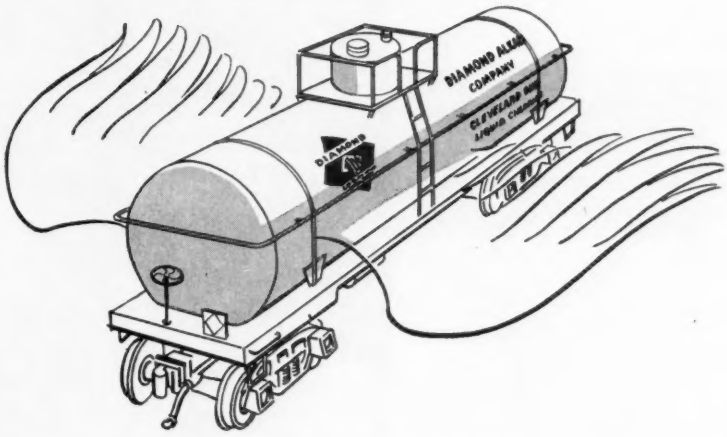
Drum Agitator: Prenco Products, Inc.'s (Hazel Park, Mich.) new drum agitator can be mounted in threaded bung of standard 55-gal. drums. Two small-diameter paddles—one on end of shaft, one halfway up—mix the contents without damaging drum. Model A has ⅓ hp., 115-v. ac. motor; Model B has explosionproof motor.

•

High-Temperature Safety: A new safety temperature control, Type E5GX, has been designed by United Electric Controls Co. (Watertown, Mass.) to protect against process overheating. Connected in series with a primary temperature control, E5GX will break the circuit, lock it open until temperature drops below a set danger point.

CHEMICALS YOU LIVE BY

Diamond Chlorine



want chlorine fast?

DIAMOND ALKALI SHIPS FROM
5 CONVENIENTLY LOCATED PLANTS

When you want chlorine or technical co-operation in a hurry, call DIAMOND ALKALI.

We are equipped to give you fast deliveries from five conveniently located plants; technical help from one of the world's greatest stores of chlorine know-how.

Call your nearest DIAMOND sales office or plant for regular or emergency shipments.

FREE! CHLORINE SAFE-HANDLING WALL CHART

DIAMOND ALKALI's years of know-how have been compressed into this chlorine safe-handling wall chart. Hang it where workers can read it. Copies free. Ask your DIAMOND sales office or write DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.

DIAMOND ALKALI CHEMICALS

Diamond Chemicals

CHLORINE PLANTS: Edgewood, Md. — Houston, Texas — Muscle Shoals, Ala. Painesville, Ohio — Pine Bluff, Ark.

SALES OFFICES: Cleveland, Cincinnati, Chicago, Houston, Memphis, New York, Philadelphia, Pittsburgh, St. Louis

NBS'S BROIDA (left), BASS: Their fundamental studies are turning up . . .

Shirtsleeve Jobs for Free Radicals

A major basic research effort on free radicals is getting under way, at the National Bureau of Standards. Set up as the bureau's free-radicals section, the project will last three years, be the biggest single program devoted to the highly reactive, normally short-lived molecular fragments. Such research is already turning up fundamental knowledge that may lead to novel commercial chemical reactions and compounds.

Section chief Herbert Broida and his assistant, Arnold Bass, emphasize that their interest in free-radical research is strictly fundamental in nature. They point out that there is not now any practical scheme for generating free radicals directly for use in reaction. But the possibility of doing just that on a commercial scale is what makes the program important to chemical processing.

For instance, free radicals, frozen until ready, then introduced into a reactor, could be a potent means of triggering chemical reactions. Conceivably, they could even be used directly as reactants in a chemical process. Since many commercial chemical processes are thought to proceed through free-radical mechanism, this would mean simplified processing steps. In polymerizations, such a technique might be used to direct the reactions to yield highly oriented products.

Moreover, free radicals are promising as a means of storing large amounts of energy: it takes a considerable amount of energy to form them. But this energy is released when they react to form complete molecules. This is the basis of studies of free radicals as possible "ultraenergy" fuel systems for missiles and aircraft. And this is undoubtedly one of the main reasons why the government is underwriting the program.

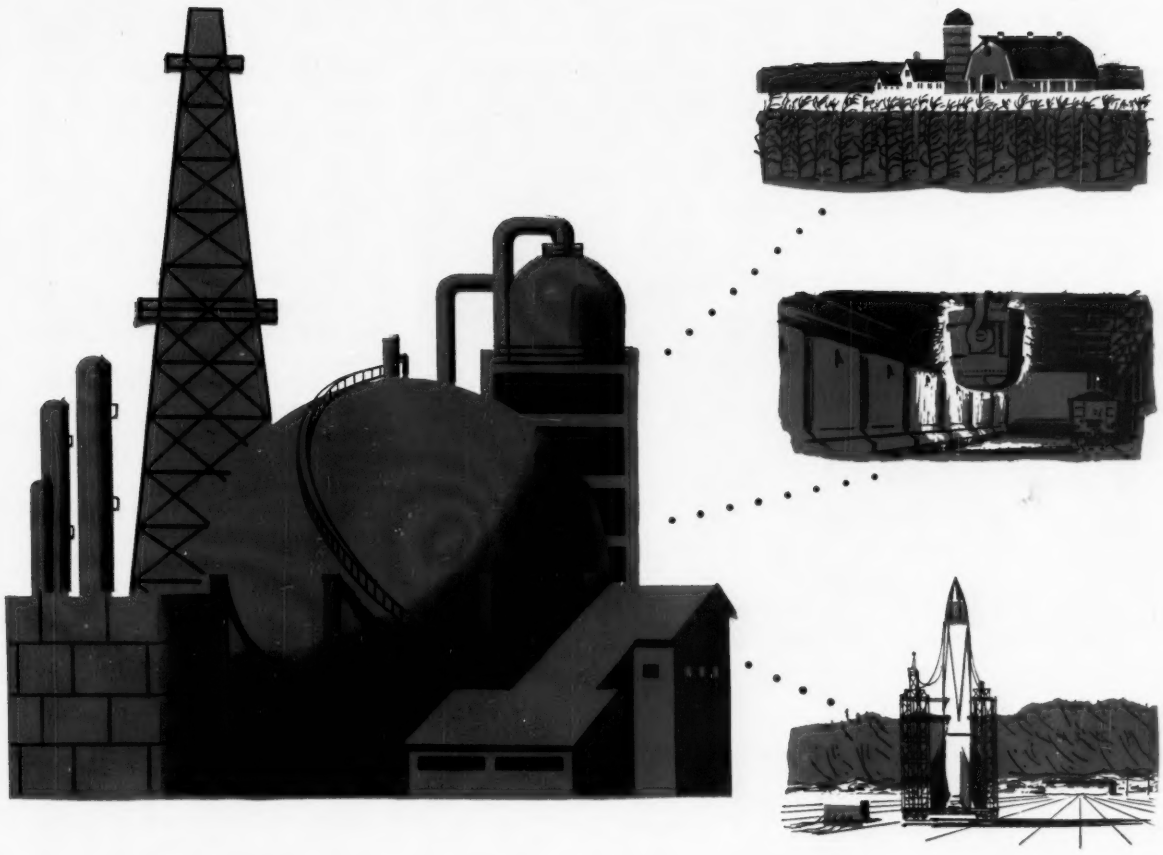
But research in the bureau's new section is already showing more practical implications for industry. Case in point: a new method of preparing ozone that is reportedly three times as efficient as the present industrial process. By allowing oxygen to flow through a high-frequency electrodeless electric discharge (2,450 megacycles produced by a medical diathermy machine), a large fraction of the gas is dissociated into free-radical oxygen atoms.

The gas mixture—consisting of oxygen atoms and molecules—is frozen on a cold (4.2 degrees above absolute zero) surface that is in contact with liquid helium. Thawed, the mixture yields copious quantities of ozone by reaction of the atoms with molecules. About 17% of the oxygen is converted into ozone.

The new technique might prove to be uneconomical, but it's an indication of the potential in free-radicals research. E. Briner, retired University of Geneva (Switzerland) professor, has also obtained hopeful results in free-radical oxygen studies. He prepared ozone at high efficiency by cooling oxygen to near the temperature of liquid air, subjecting it to an electric discharge and collecting ozone (which has a higher boiling point than liquid oxygen) as a condensate.

Ozonator-producing Welsbach Corp. (Philadelphia) tried the method, found oxygen cooling costs outweighed possible savings resulting from the higher efficiency of conversion. A sharp reduction in conventional ozone production costs (currently 10-15¢/lb.), however, is in the offing as the result of improvement in existing equipment, according to Welsbach's executive vice-president, Victor Hann.

In high-energy fuels, too, a lot of hopes are being pinned on free-radicals research. Financial support for the new NBS program is coming from the Dept. of Defense, via the U.S.



Atlantic makes Anhydrous Ammonia for every use

Anhydrous ammonia is a versatile chemical raw material. It is used in the manufacture of fertilizers, stainless steels, plastics and rocket fuels—to name only a few of its industrial applications.

Whatever use *you* have for it, Atlantic is ready to supply it promptly . . . *and* to provide expert technical assistance in its applications.

Anhydrous ammonia is only one of the Atlantic family of petrochemicals. Both industry and agriculture are constantly finding new and profitable uses for Atlantic petrochemicals, which are characterized by uniform quality and stable supply.

For more information on anhydrous ammonia and other Atlantic petrochemicals, write or wire The Atlantic Refining Company, Dept. H-3, at the nearest office listed.

ATLANTIC
PETROLEUM
CHEMICALS

Philadelphia, Providence, Charlotte, Chicago

In the West: L. H. Butcher Co.

In Canada: Naugatuck Chemicals Division of Dominion Rubber Co., Ltd.

In Europe: Atlantic Chemicals SAB, Antwerp, Belgium

In South America: Atlantic Refining Company of Brazil, Rio de Janeiro

WELSBACH'S HANN: In ozone production, a cost-cutting innovation.

Army's Office of Ordnance Research. The bureau won't research free radicals for propellents, as such. But it's no secret that fundamental data is sorely needed to overcome a major obstacle to this end: finding out how to stabilize the appropriate free radicals in high concentration for long periods of time.

Under an unusual plan, the free-radicals program is also getting an assist from industry. About half of the staff, which at full strength will number about 30 senior scientists (include another 20-30 laboratory technicians and secretarial help), is being loaned from industry. Already on the scene are guest scientists from Dow of Canada, Monsanto, California Research Corp., Callery Chemical, Olin Mathieson, Wyandotte, General Electric, and Union Carbide. Humble Oil and Ethyl Corp. will also send representatives.

The full-time working guests are paid by their respective firms, selected to participate in the program on the basis of competence and interest in the field. Two have figured in the ozone research: Callery's Joseph Hashman and Monsanto's Robert Ruehrwein.

In addition, an advisory panel comprised of outstanding researchers from universities and industry meets every two months to help in formulating over-all direction of the program. The panel includes men from Westinghouse, General Motors, Brandeis University, General Electric, Catholic University, Maryland University, and NBS.

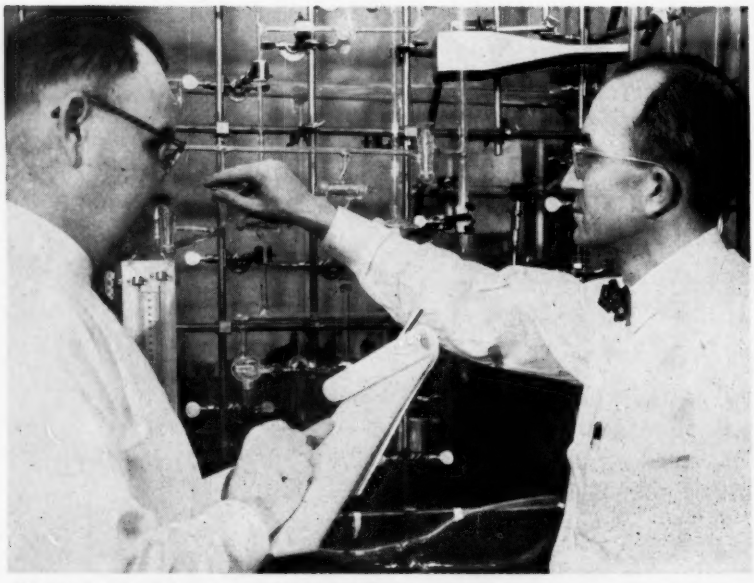
Broida and Bass aim to set up a technical data center for following free-radicals research at other laboratories, both in the U.S. and abroad. Within the section, they knit projects together, hold weekly colloquies. Later this year*, they'll figure in a three-day symposium designed to explore free-radical theories.

But before any commercial applications develop, a lot more must be known about how free radicals can be produced, what their properties are, and how they can be stored.

Free radicals are formed in flames and high-intensity arcs, but aren't easily recovered from such surroundings. Besides the electrodeless high-frequency electric discharge used in its ozone and other research work, NBS is looking into formation of free radicals by high-energy electron bombardment of condensed gases (nitrogen, oxygen and hydrogen); photolysis; gamma rays; and by direct-current discharge.

NBS staffer Roland Florin is also investigating ways to synthesize perfluorovinylazide $(CF_3=CFN_3)_x$ or vinyl azide $(CH_2=CHN_3)_x$ in the hope that gamma radiation of these substances will yield stabilized nitrogen radicals embedded in the polymer matrix, make stabilization at extremely low temperatures unnecessary.

Projects like these could be the stepping stones to the free-radical era in chemical processing.



HASHMAN (left) and RUEHRWEIN: Thawed atoms spark their ozone process.

*On Sept. 18-20; the symposium will be held at NBS, be sponsored jointly by NBS, the Catholic University of America, and the applied physics laboratory of Johns Hopkins University.

do technical men make good salesmen?

Many of the world's most successful salesmen are men who have had education, training, or experience in technical fields.

Obviously, it does not follow that every technical man could be a successful salesman any more than every graduate of business administration makes a good businessman. But here at Columbia-Southern, most of our salesmen have been technically trained. Although they may have planned careers in research or design, or in construction or some other technical field, selling has given them greater opportunities to exercise their best talents, and, consequently, to enjoy the rewards of greater satisfaction and happiness.

Selling chemicals, of course, is not like selling house-to-house, or to the general public. As a Columbia-Southern salesman, you're dealing with people who, for the most part, are technically trained themselves. Your firm is well known as one of the largest in its industry.

Columbia-Southern has been expanding continually. Our sales staff is growing, which means opportunities for good technical men, preferably with sales experience.

Perhaps this is the opportunity for you. If you feel you have an aptitude for sales, write giving details of your education and background. Your correspondence will be held in strict confidence. Address your letters to the personal attention of Mr. Chris F. Bingham, Vice President—Sales, Columbia-Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pa.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

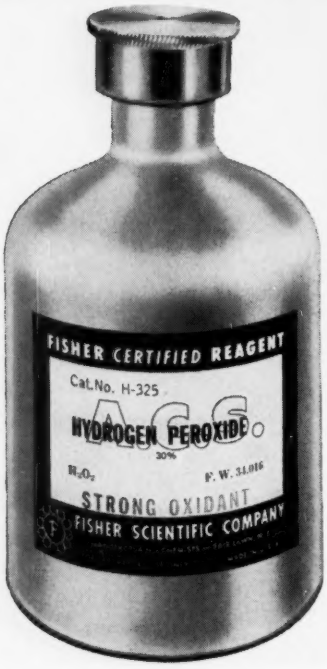
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

ONE GATEWAY CENTER · PITTSBURGH 22 PENNSYLVANIA

DISTRICT OFFICES: Cincinnati • Charlotte • Chicago • Cleveland • Boston • New York • St. Louis • Minneapolis • New Orleans • Dallas • Houston • Pittsburgh • Philadelphia • San Francisco

IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

The new, safe way to pack, ship and handle
HYDROGEN PEROXIDE
H_2O_2 (30%)
FISHER
SPUN ALUMINUM CONTAINERS



- UNBREAKABLE CANISTER
- SAFETY SCREW CAP
- ANALYSIS ON LABEL

AT NO INCREASES IN PRICES

Unbreakable, protected against pressure blowouts, ICC-approved without costly packing—that's the new and exclusive aluminum container Fisher uses for its H_2O_2 (30%) in Certified, Reagent, and Technical grades.

Aluminum packaging assures safer and easier handling of the Hydrogen Peroxide and more stability for a longer period. B-45a

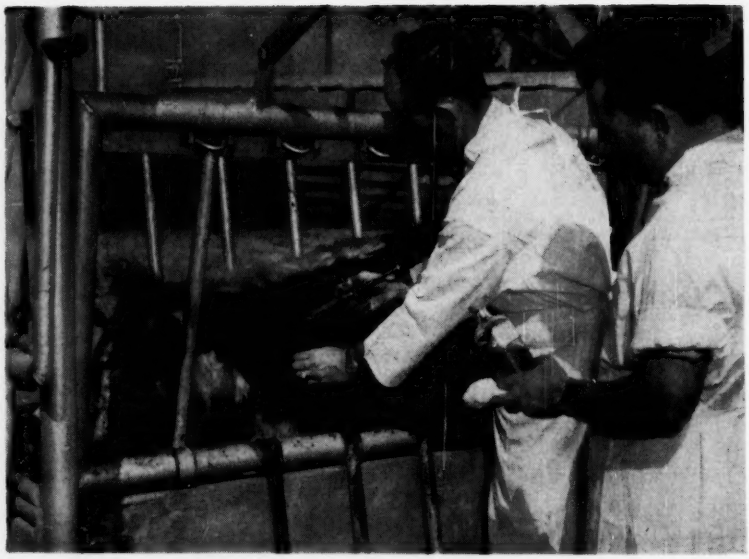
A "gold mine" of chemicals yours for the asking

Write for Chemical Index 120C.

129 Fisher Building, Pittsburgh 19, Pa.

FISHER SCIENTIFIC

Boston Buffalo Chicago Charleston, W. Va.
Cleveland Detroit New York Philadelphia
Pittsburgh St. Louis Washington Montreal • Toronto



GRUB-INFESTED BULL: For ravaged cattle, new chemical relief.

Closing In on Cattle Grubs

Current evaluations of Dow's ET-57, the systemic insecticide for cattle grubs (CW Technology Newsletter, Feb. 9), are so promising that the product may be for sale in 1958.

Dow has not yet made the decision to go ahead. For although ET-57 looks promising, it is still too early to predict its commercial future. The chemical (O,O-dimethyl-O-2,4,5 trichlorophenyl phosphorothioate) is difficult to make, costly to evaluate.

It may take another 18 months of tests costing an estimated $2 million before its full measure is known. One reason: the grubs don't survive for more than 5-6 days outside their animal hosts (their normal life cycle is 9 months), which rules out the possibility of *in vitro* experiments. It means that the chemical must be tested directly on cattle.

Multimillion-Dollar Losses: Cattle grubs are the flesh-burrowing pests that cost the U.S. livestock industry an estimated $100-200 million/year. Right now, the best treatment is external application of rotenone. This is a slow process, kills the grubs only in their final stages of growth—after much damage to the hides has already been done.

So far, Dow's entry, which can be administered either orally or by injection, seems to have an edge on rotenone. Tests now under way at 28 agricultural stations as well as at Dow's laboratories in Midland, Mich., are designed to determine if the drug kills grubs in all stages of growth, whether it is safe to beef and dairy animals (including residual studies), its effect on meat flavor, and the best way to administer it.

ET-57 is the result of a continuous screening program on newly synthesized compounds, a strong research interest in phosphate systemics (*CW, Sept. 3, '55, p. 79*). Early work (late '55) showed that the compound had insecticidal activity, relatively low mammalian toxicity.

Further tests on cattle confirmed its lethal effect on grubs.

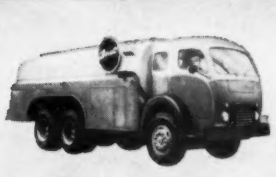
Dow has other farm chores in mind for its new compound, too. As a fly killer it can be used in barn, cattle and household sprays. For this purpose, the company is offering a technical grade, called ET-14. Since the compound isn't water-soluble, its applications are limited. Also, it can't substitute for Medicinal-Grade ET-57.

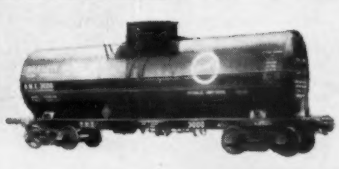
But the company's chief hope for the compound is in its use as a decimator for cattle grubs. And there, though it faces no immediate competition from any established product, it

HOW BIGNESS WORKS FOR YOU IN PHTHALIC SUPPLY

We admit that sheer size isn't always important. But in the case of phthalic anhydride, there are distinct advantages in dealing with Barrett—the world's largest supplier. The size of our operations means phthalic available in quantity—supplied in molten form—in tank cars or tank trucks.

To the user of molten phthalic, it means short, reliable supply lines. Tank cars and tank trucks can be dispatched to you from any of our four separate plants at Philadelphia (2), Ironton (Ohio) and Chicago. Barrett phthalic is also available in flake form in unitized shipments. Why not discuss your phthalic needs with your Barrett representative! Or write for illustrated brochure and particulars.





Chemical Progress Week
April 8-12

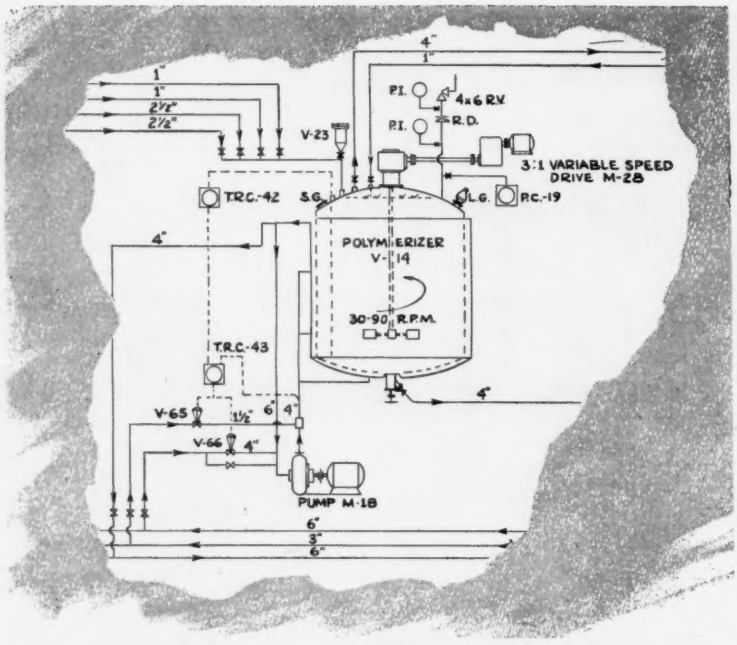
Barrett®

BARRETT CHEMICALS

BARRETT DIVISION, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N.Y. In Canada: The Barrett Company, Ltd., 5551 St. Hubert Street, Montreal, Que.

Allied Chemical

WORLD'S LARGEST PRODUCER OF PHTHALIC ANHYDRIDE



POLYMER PLANT ENGINEERING

Crawford & Russell engineers bring to your polymer and monomer problems years of successful, practical experience in —

Synthetic rubber
Rubber and plastic latices
Polyvinyl chloride resins
Polyvinyl acetate emulsions
Alkyds and polyesters
Phenolic liquids and molding powders
Copolymers by emulsion, suspension, and special techniques
And other advanced polymer and monomer processes

A complete, confidential engineering service that adapts the newest advances of the art to your own particular process developments.

A single source of competent help from the pilot plant stage through plant construction to final process start-up.

Write for bulletin 611.

CRAWFORD & RUSSELL
INCORPORATED
695 SUMMER ST., STAMFORD, CONNECTICUT

may run into some trouble from Bayer 21/199, another phosphate.

Tests on that product have been dubbed promising by USDA, too. But a lot less is known about the Bayer product. So, chances are that, even if both products prove out, ET-57 will have a running start.

Exit Injections

For some diabetics, a pill may soon take the place of their insulin injection kits. That's the implication of new clinical findings on sulfonyl ureas and related compounds—subject of a recent New York Academy of Sciences-sponsored medical conference.

Conferees heard about Upjohn's (Kalamazoo, Mich.) Orinase (*CW Technology Newsletter, Nov. 10, '56*) and tests that show it to be as effective as insulin in some cases. Generically designated tolbutamide, the material produces few—and mild—side reactions. Less fortunate: Eli Lilly's oral diabetic BZ-55 (carbutamide), on which tests were halted.

In describing clinical trials with Orinase on 500 diabetic patients at New York's Mount Sinai Hospital, physician Henry Dolger reported that nearly half were able to discontinue insulin entirely. Dolger found no instance of toxic reaction. George Stoetter, professor of medicine at Goetingen University, West Germany, confirmed tolbutamide's efficacy on 450 patients, did turn up several cases of mild skin rash.

Although Dolger believes the oral drug might successfully replace insulin injections from 50-75% of the nation's 1.6 million diabetics, he reveals that its success in children is "so rare it can be considered zero." Nor is the drug effective in cases where the patient's pancreas has been destroyed.

In the age group 40 and above, Dolger predicts the drug will prove helpful to four out of five diabetics (75% of all diabetics cases occur after age 40). In the 20-40 age group, he expects it to help one out of three.

Chemically related to the sulfa drugs, Orinase is a sulfonyl urea. Unlike other sulfas, its structure does not include the usual *p*-amino group, substitutes a methyl instead. And it is not antibacterial.

Evaluation of Orinase by Food & Drug Administration is now in progress; results will determine when the drug may be released for public use.

do you make a

Urea-Formaldehyde product?

then profit by reading this book

U. F. Concentrate-85 contains 85% active raw materials—59% formaldehyde, 26% urea—and only 15% water. This high solids content enables you to charge more formaldehyde and urea into each kettle. You can increase plant capacity, using existing facilities. Write for your free copy of the new 40-page booklet on U. F. Concentrate-85 properties, applications—and economies.

Dept. UF 2-7-1

Allied Chemical — NITROGEN DIVISION

40 Rector Street, New York 6, N. Y.

Ethanolamines • Ethylene Oxide • Ethylene Glycols • Urea • Formaldehyde • U. F. Concentrate—85 • Anhydrous Ammonia • Ammonia Liquor • Ammonium Sulfate • Sodium Nitrate • Methanol • Nitrogen Solutions • Nitrogen Tetroxide • Fertilizers & Feed Supplements

TENNESSEE CORPORATION

INDUSTRIAL CHEMICALS

We mine Copper, Sulfur, Iron and Zinc and are basic producers of their chemical derivatives. Our technical know-how and basic position in these minerals is your assurance of exacting quality control, strict uniform consistency and a plentiful supply.

COPPER

COPPER SULFATE
Industrial Crystals and all common grades.

MONOHYDRATED COPPER SULFATE
35% Copper as metallic packaged in steel drums at no extra cost.

COPPER CARBONATE
55% Copper as metallic. Light and dense grades.

CUPRIC CHLORIDE
37% Copper as metallic. Available in poly-lined drums or bags.

CUPRIC OXIDE
Minimum 76% Copper as metallic. Technical grade . . . NOT A BY-PRODUCT.

SULFUR

SULFURIC ACID

Highest commercial quality, available in tank cars, tank wagons, ton cylinders and 150-lb. cylinders.

CHLOROSULFONIC ACID
Iron less than 1.0 ppm as loaded. Water white. Delivered in glass-lined tank wagons, also in stainless steel drums.

SODIUM HYDROSULFITE
T-C HYDRO is a dry, white, free flowing, crystalline powder of uniform particle size and structure. It is dust free, assuring highest stability and uniformity.

PARA TOULENE SULFONIC ACID, ANHYDROUS
Other organic Sulfonic Acids.

ZINC

MONOHYDRATED ZINC SULFATE
36% Zinc as metallic. White, free flowing powder.

ZINC OXIDE
Secondary Zinc Oxide.

IRON

FERRIC IRON SULFATE
Partially hydrated, free flowing granular form. Available in bags or bulk.

MANGANESE

MANGANESE SULFATE
65% Mn SO_4. Designed specifically for inclusion in mixed fertilizer.

MONOHYDRATED MANGANESE SULFATE
93% Mn SO_4, H_2O. Highest purity, technical grade . . . NOT A BY-PRODUCT.

MANGANOUS OXIDE
Minimum 48% Manganese as metallic. Feeds, fertilizers, spray or dust grades.

Samples, specifications and detailed information upon request.

TENNESSEE CORPORATION

617-29 Grant Building, Atlanta, Georgia

Technology
Newsletter

CHEMICAL WEEK
March 2, 1957

Look for word soon about Allied's low-pressure polyethylene project. The firm has been quietly working on the process for some time (*CW Technology Newsletter, Dec. 15*), has revealed that it has such a process (*CW, Feb. 2, p. 22*). Actually, the firm is further along than it has indicated.

What Allied will probably say soon: it is in "commercial" production of low-pressure polyethylene at its Buffalo plant.

•

Union Carbide's nuclear research program will have a new home: a multimillion-dollar (reported to be in the $6-8 million range) research center in the Sterling Forest region of New York, about 40 miles north of New York City. Included will be a 5-megawatt swimming-pool-type reactor and an ores and engineering lab. The reactor will be designed and built by AMF Atomics, a subsidiary of American Machine & Foundry. Completion is scheduled for late next year or early 1959.

The UCC facility, moreover, may be only one of several for the Sterling Forest region. A real estate firm, City Investing Co., is supplying the land through a special arrangement. And it has been trying to interest several other firms in setting up labs there.

•

Food & Drug Administration will have its new headquarters-lab building (cost: $12.1 million) on schedule despite halting of the government's lease-purchase program. General Services Administration says it has money for site acquisition and planning, has hired Seattle Architect-Engineers Naramore, Bain, Brady and Johanson to draw up plans. (The firm designed Crown Zellerbach's Camas, Wash., lab.) FDA expects to be in its new home in Washington, D.C., in 1960; meanwhile it will rent space in a third, possibly a fourth building for its expanding staff.

•

Vapor-phase chromatography may be adding a large band to its temperature spectrum as a result of a new thermal conductivity cell being placed on the market this week by Barnes Engineering Co. (Stamford, Conn.). Key: a flake thermistor that operates over a range of 30 to 325 C. This, says Barnes, should enable the chromatographs to handle liquids boiling at temperatures as high as 475 C. (For purposes of comparison, the limit now on one, good commercial instrument is 300 C.)

The thermistor was originally developed by Bell labs as a detector for infrared radiation.

•

A new process for converting oil to synthesis gas will be put to work by Shell Chemical at a $16.8-million plant in England. The

plant is being built at Shellhaven, Essex. Developed by N. V. de Bataafsche Petroleum Maatschappij, one of the main operating companies in the Shell group, the process is already being used at Ijmuiden, near Haarlem in the Netherlands. It's said to be adaptable to any hydrocarbon ranging from gas to heavy fuel oil. In the English plan, it will be used to make the synthesis gas for making ammonia, which, in turn, will be converted into nitric acid.

•

The extra refining step *(CW Technology Newsletter, Feb. 16)* that USI is experimenting with in conjunction with its zirconium production (*see p. 67*) will turn out a product in the form of "platelets," which the firm further describes as "irregular pieces about the size of dimes and quarters."

As USI sees it, the platelets will have some advantages over normal sponge zirconium: They're nonpyrophoric, nonhygroscopic, and are classed as metal rather than sponge. This means they're not subject to the restrictions needed in handling sponge.

•

Two chemical developments significant to drug researchers:

A team of Princeton researchers has developed a way of synthesizing intermediates for making pteridines—materials that are believed to play a role in cell division. Many members of the family have been tested in the hopes of blocking cancerous growths, but have for the most part been disappointing. The new synthesis should open up a big new group for additional tests.

• Experiments on humans may start soon, utilizing a virus that produces effects that are remarkably similar to the common cold. The virus—JH—was isolated by Winston Price, of the Johns Hopkins School of Hygiene and Public Health, four years ago. But reports of his work have only now been published—in the proceedings of the National Academy of Sciences.

•

The long-smoldering battle in the Defense Dept. over who should coordinate new weapons development programs—the Assistant Secretary of Defense (Research and Development) or the Assistant Secretary (Applicants Engineering)—has been settled. Now that Clifford C. Furnas (who headed the R&D setup) has resigned to return to his job as chancellor of the University of Buffalo, the jobs are being combined.

New kingpin of Defense Dept. weapons work is Frank Newbury, 75, who had headed the Applications Engineering setup—and who had reputedly taken the engineer's point of view in Pentagon debates, where Furnas had defended the scientist's viewpoint. Furnas had threatened to quit six months ago—but stayed on when an order giving Newbury more authority had been revoked.

LIMESTONE

100,000,000 Tons plus

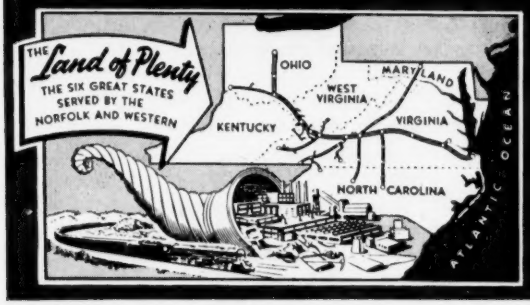
Over 97.5% Calcium Carbonate*

Mineable thickness of more than 100 feet

Adjacent to dependable N&W Rail Service

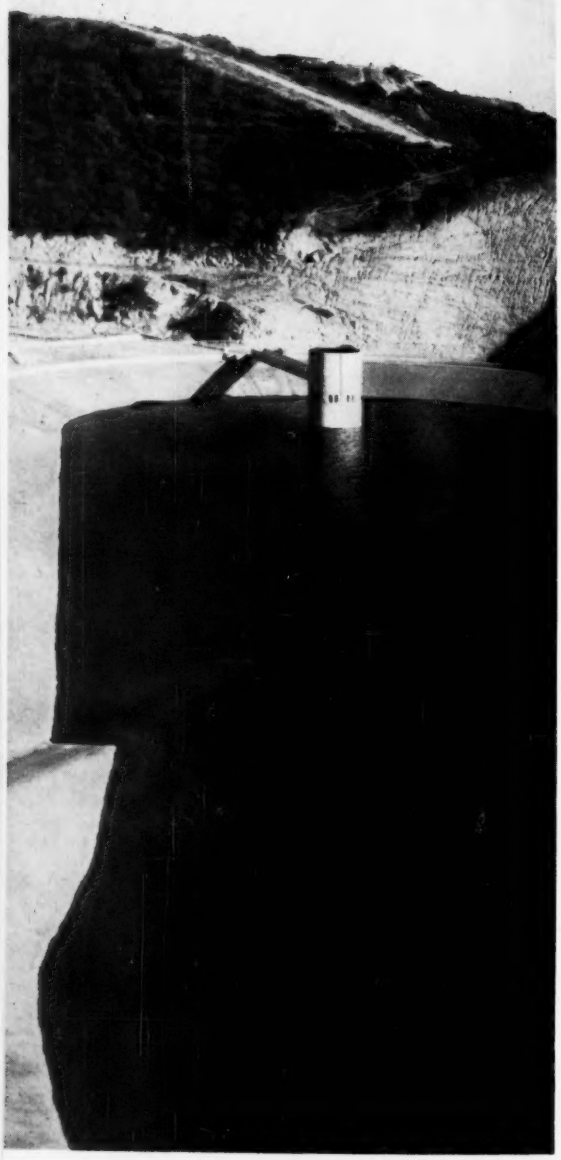
For full plant site information related to this vast deposit, plus details about many other Land of Plenty sites near excellent deposits of high calcium and dolomitic limestone, *WRITE, WIRE OR CALL —*

L. E. Ward, Jr., Manager
Industrial and Agricultural Dept.
Drawer CW-751 (Telephone 4-1451, Ext. 474)
Norfolk and Western Railway
Roanoke, Virginia



*According to Analysis by Pittsburgh Testing Laboratories.

Norfolk and Western RAILWAY



Treating U.S. Water This Year

Will Take These Chemicals in These Amounts

	Tons/year
COAGULANTS	
Aluminum sulfate	225,000-250,000
Ferric sulfate	12,000-14,000
Ferrous sulfate	10,000-12,000
Sodium aluminate	3,500-4,000
Ferric chloride	1,500-1,750
SOFTENERS: by precipitation, sequestering	
Lime, hydrated and 'quick'	675,000-685,000
Sodium carbonate	130,000-140,000
Mono-, di-, tri-sodium phosphates	25,000-30,000
Polyphosphates	12,000-14,000
SOFTENERS AND DEMINERALIZERS: by ion exchange	
Zeolites, sodium	6,000-7,000
Raw materials for resins	
Sulfonating agents	10,000-10,500
Styrene	2,500-2,750
Di-vinyl benzene	250-260
Organic amines	250-275
Regenerating agents	
Sodium chloride	600,000-700,000
Sulfuric acid	50,000-60,000
Sodium carbonate	50,000-55,000
Sodium hydroxide	15,000-17,000
Hydrochloric acid	5,000-7,000
ALGAECIDES, BACTERICIDES	
Chlorine	75,000-78,000
Copper sulfate	5,000-6,000
Ammonia	5,000-5,500
DEODORIZERS, DEAERATORS	
Sodium sulfite	15,000-17,000
Activated carbon	11,000-13,000
Sulfur dioxide	1,100-1,500
FLUORIDE ADDITIVES	
Sodium silicofluoride	8,000-10,000
Fluosilicic acid (25%)	7,000-8,000
Sodium fluoride	1,500-1,600

Better Water: A Siphon for Chemicals

AS THE volume of water used in U.S. industry and homes has increased over the years, the use of water-treatment chemicals has also seen a sharp boost—to where, in '56, more than 1.5 million tons of chemicals were sold for such purposes. And with water consumption expected to double within the next two decades, the industry now confidently forecasts that by '75 close to 3 million tons/year of chemicals will be so consumed.

What are these uses? Coagulation, softening, demineralization, fluoridation, and as bactericides and algaecides, to name but a few. And some 25 chemicals find volume

On the go for good reason

(Dow technical men bring lab experience to ethanolamine users)

A new product in the works, a product being improved—whenever and wherever the use of ethanolamines presents a problem, you're likely to find a Dow technician giving on-the-spot help. And for good reason:

Either through reference or research, these experts save time and money.

Often, the answer is a matter of experience. For this group has worked on formulating and processing problems for hundreds of manufacturers... has accumulated much knowledge on the use of ethanolamines, as well as glycols and polyglycols. Or if an application is unique, they can give it undivided attention in our completely equipped laboratories. Here, variables are more easily controlled, solutions are fast coming.

Whenever *you* strive for improvements of economies with mono, di, or triethanolamine, let one of our technicians serve as a short cut. His experience and know-how are always available by writing us direct. THE DOW CHEMICAL COMPANY, Dept. GD 863P, Midland, Michigan.

YOU CAN DEPEND ON DOW

IDEAL SITES
FOR CHEMICAL PLANTS
IN THE
SEABOARD SOUTHEAST

Situated on deep water, with railroad and ocean-going transportation.

Abundant water supply. Ample labor and near large centers of population.

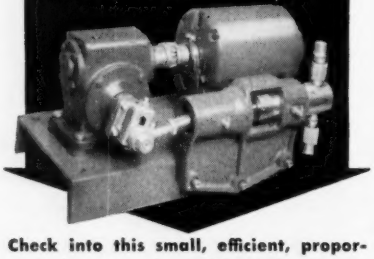
For detailed reports based on your specific requirements, address without cost or obligation:

●

Warren T. White
Assistant Vice President
Seaboard Air Line Railroad Company
Norfolk 10, Virginia

SEABOARD
AIR LINE RAILROAD
Through the Heart of the South

NEED LOW COST BOILER WATER TREATMENT?



Check into this small, efficient, proportioning pump by PROPORTIONEERS!

For greater accuracy, greater range, feed all chemicals (alkaline, neutral, or acid) with this Model 1106 Proportioneer. Pay less, get more . . . interchangeable measuring cylinders, super-accurate Vane-Guide check valves, percentage calibrated stroke-length scale, etc.

- Accuracy — within ±1%
- Adjustment range — 15 to 1
- Capacities — from 0.11 to 35.6 GPH
- For discharge pressures up to 1100 psig.

Request Bulletin 1106-2 for complete data.
Proportioneers, Inc.
406 Harris Ave., Providence 1, R. I.

PROPORTIONEERS, INC.
DIVISION OF
B-I-F INDUSTRIES
METERS • FEEDERS • CONTROLS

markets in water treatment.

Coagulant Kick-Off: Usually, the preliminary treatment of raw water involves coagulation of suspended particles. Work horse for this job, of course, is alum—aluminum sulfate. Close to 250,000 tons of alum—about a third of total annual production—will be sold for water-treatment uses this year.

Sodium aluminate—another aluminum-type coagulant—is important for certain processes, but does not rival alum in the volume consumed. About 4,000 tons of the chemical will be used for water treatment in '57.

Two other important coagulants—ferric sulfate and ferrous sulfate—are used with water that is exceptionally turbid or is substantially acid or alkaline. A total of 22,000 tons of these materials was used in '56 by municipal and industrial water plants. A small amount (about 1,500 tons/year) of ferric chloride is also used as a coagulant, but demand remains restricted because of the chemical's corrosive properties.

As the hunt for new water supplies intensifies in the years ahead, the more-turbid sources certainly will be tapped, and use of all types of coagulants will no doubt grow considerably.

Softeners Set the Pace: Annual volume of coagulants used, large as it is, is dwarfed by the demand for chemicals used to soften water, i.e., to remove most of the dissolved minerals that make water "hard." Soft water is especially important in such water-hungry industries as textile manufacture, laundering, papermaking, dyeing.

One important way of softening water is to precipitate dissolved contaminants by the addition of chemicals such as lime and soda ash. Combined consumption of these two leading precipitants amounts to more than 800,000 tons/year. Another important group of precipitants is comprised of mono-, di- and tri-sodium phosphate, used principally in secondary treatment of water when especially soft water is needed. This year, 30,000 tons of such phosphates will be consumed for this purpose.

Polyphosphates are also used as secondary-treatment chemicals, but differ from the other phosphates in the way they act.* A comparatively small amount—between 12,000 and 14,000 tons/year—is used by the water industry. The reason: these phosphates are relatively expensive.

Ion-exchange units—using either natural or synthetic chemicals—have become important in both the softening and the demineralization of water.† Sodium zeolite is the leading "natural" exchanger. About 8,000 tons will be used in '57 by municipal and industrial water-treating installations.

The manufacture of synthetic ion-exchange resins consumes more than 14,000 tons/year of raw materials such as styrene, amines, di-vinyl benzene, and sulfonating agents. But, by far the greatest tonnage of chemicals consumed in ion-exchange processes is used to regenerate the exchangers—replacing the various minerals removed during water conditioning, and restoring the exchange material to its original condition. Sodium chloride is the heavyweight in this use; last year, more than 700,000 tons were used in regeneration. This year demand will climb close to 800,000 tons.

Sulfuric acid and sodium carbonate, too, are important regenerators of exchange units. The water industry consumed well over 500,000 tons of each last year, and will easily meet this figure in '57. Other important regenerators: sodium hydroxide, with a consumption of 15,000-17,000 tons/year; hydrochloric acid, with 5,000-7,000 tons/year.

Bactericides Boost Sales: Makers of disinfectants and bactericides find big outlets for their products in the treatment of industrial and municipal water supplies. Of the many water disinfectants on the market today, chlorine, of course, is the most widely used. This year, 75,000-78,000 tons of chlorine will be used to keep U.S. water supplies pure. And the chlorine industry feels confident that by 1966 more than 100,000 tons will be required to do the job. Ammonia—at times used with chlorine—also helps eliminate bacteria. At least 5,500 tons of ammonia will be used in '57 for water purification.

Copper sulfate, a well known algae-

*Polyphosphates soften water by chelation. Instead of precipitating dissolved minerals, such chelating agents combine with the minerals, rendering them soluble and nonreactive with soaps and similar materials.

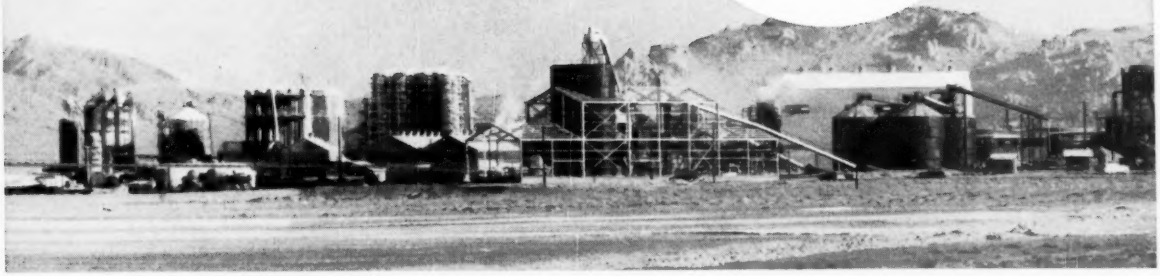
†Water, in passing through a softening unit, comes in contact with ion-exchange materials, which replace undesirable metals (e.g., calcium, magnesium) in the water with nonobjectionable metals such as sodium. Thus, water is softened. Demineralization, on the other hand, removes all ionized substances, usually replacing them with hydrogen and hydroxyl ions.

West End anhydrous **SODIUM SULFATE** merits your confidence for its consistent purity

Here is the new high standard of sodium sulfate quality achieved by exclusive West End production techniques and controls. The product is pure white and exceedingly low in heavy metal content. It is guaranteed 99½% minimum Na_2SO_4 yet actually runs 99.75% to 99.8% Na_2SO_4 typically. We invite your attention to the adjacent typical analysis and welcome your communication.

TYPICAL ANALYSIS

Na_2SO_4	99.5% or better
Na_2O	.05% max.
B_2O_3	.05% max.
NaCl	.07% max.
Insoluble	Trace
Loss on ignition	Less than 0.1%
Solution	Clear
Color	White
Fe	1 ppm
As	1½ ppm
Cu & Zn	Not detectable



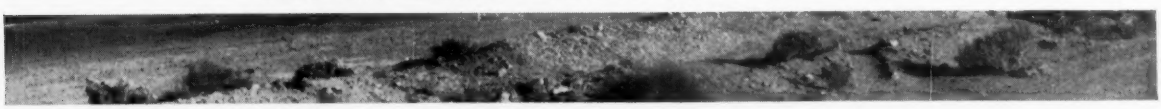
WEST END

West End Chemical Company

DIVISION OF STAUFFER CHEMICAL COMPANY

EXECUTIVE OFFICES, 1956 WEBSTER, OAKLAND 12, CALIF. • PLANT, WESTEND, CALIF.

SODA ASH • BORAX • SODIUM SULFATE • SALT CAKE • HYDRATED LIME



RC COMONOMERS

Unsaturated diesters of high purity available in commercial quantities for use as...

* *Internal plasticizers for polyvinyl acetate*
* *Synthetic lubricants and oil additives*
* *Comonomers in polymerization reactions*
* *Synthetic detergent intermediates*

DIOF Di-iso-octyl Fumarate	DIOM Di-iso-octyl Maleate
DOF Di-2-ethyl hexyl Fumarate	DOM Di-2-ethyl hexyl Maleate
DBF Dibutyl Fumarate	DBM Dibutyl Maleate

Special comonomers available on request

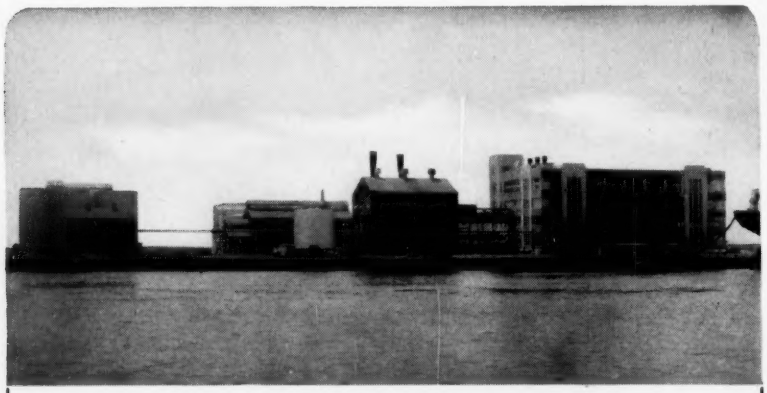
WRITE FOR SAMPLES! We'll send you a brochure on all RC products that can speed your operations, improve your products.

RUBBER CORPORATION OF AMERICA

Ready . . . reliable . . . RC serving American industry, since 1930.

New South Road, Hicksville 5, N. Y.

Sales Offices: NEW YORK • AKRON • CHICAGO • BOSTON



Swift & Company, Port Newark, N. J. Plant comprises a vegetable oil refinery, with tank yard, pumping station, hydrogen plant, boiler house, an experimental bakery and food testing laboratory.

An experienced corps of consultants and designers to work with you for a low cost competitive plant or enlargement.

LOCKWOOD GREENE

ENGINEERS-ARCHITECTS

Boston 16, Mass.	New York 17, N.Y.	Spartanburg, S. C.
316 Stuart Street	41 East 42nd Street	Montgomery Bldg.

OVER A CENTURY OF INDUSTRIAL PLANT DESIGN EXPERIENCE

cide, not only controls the growth of algae and other living organisms but also reduces odors and bad taste usually found in raw water. Other algaecides used to a lesser extent in the water industry include bromine, pentachlorophenates, concentrated sodium and calcium hypochlorites. But relatively high costs limit use.

Control of equipment corrosion by removal of dissolved oxygen in water provides another outlet for chemicals. Sodium sulfite is one of the more important "deaerators"—about 15,000-17,000 tons will be consumed this year in water-treating plants. Sulfur dioxide is another chemical used as a deaerator; U.S. industrial plants use a total of 1,500 tons/year to protect their water-containing equipment from corrosion. Other deaerating chemicals include hydrazine, salts of hydrazine, ferrous hydroxide. Several other chemicals that help prevent corrosion by making the treated water more alkaline are sodium hydroxide, sodium silicate, sodium hexametaphosphate.

Activated carbon, as a deodorizer, has found an important niche in water treatment. It will remove objectionable tastes and odors caused by microscopic organisms or by chlorine, which had been used as a germicide. More than 12,000 tons of activated carbon were sold to U.S. water-treating plants last year. This year, the figure may nudge 13,000 tons.

Fluoride Flow: Hotly discussed these days, is the fluoridation of municipal water supplies. Since 1945, more and more communities have included fluoridation as part of their regular water-treating process, and today, about 1,400 cities and towns, with a total population of more than 30 million are using various fluorides in their drinking water. Although there is some disagreement about the actual tonnage breakdown of fluorides used, consensus of fluoride industry representatives is that an estimated 15,000-17,000 tons of different fluoride-containing compounds will be used in '57 for water treatment.

Fluoridation may or may not become a universal practice. But, as water consumption by the nation's fast-growing population and many water-thirsty industries continue to soar, ever larger volumes of chemicals will be needed to decontaminate and purify this year-round commodity.

Take a good look at your multiwall bag!

Like women's bathing suits, multiwall bags also reveal the passing of time.

Is your bag a vivid, modern example of your business vitality . . . or is it dull, drab and lacking in appeal?

Is your bag the ideal package for your product, in size and construction, or is it a carry-over from the past?

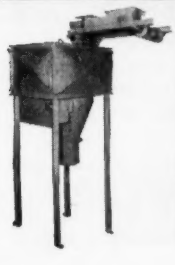
To compete successfully in your markets, your package should be as up-to-date as this issue of the magazine . . . *if it isn't*, it's a good idea to send for us.

KRAFT BAG CORPORATION

Gilman Paper Company Subsidiary
630 Fifth Avenue, New York 20, N. Y.
Daily News Bldg., Chicago 6, Ill.
Plants at St. Marys, Georgia and Gilman, Vermont
Sales Agents for The Kraftpacker

Gilman PAPER CO.
• St. Marys Kraft Corp.
• Gaylord Container Corp.
• The Coastwood Corp.
• Kraft Bag Corp.

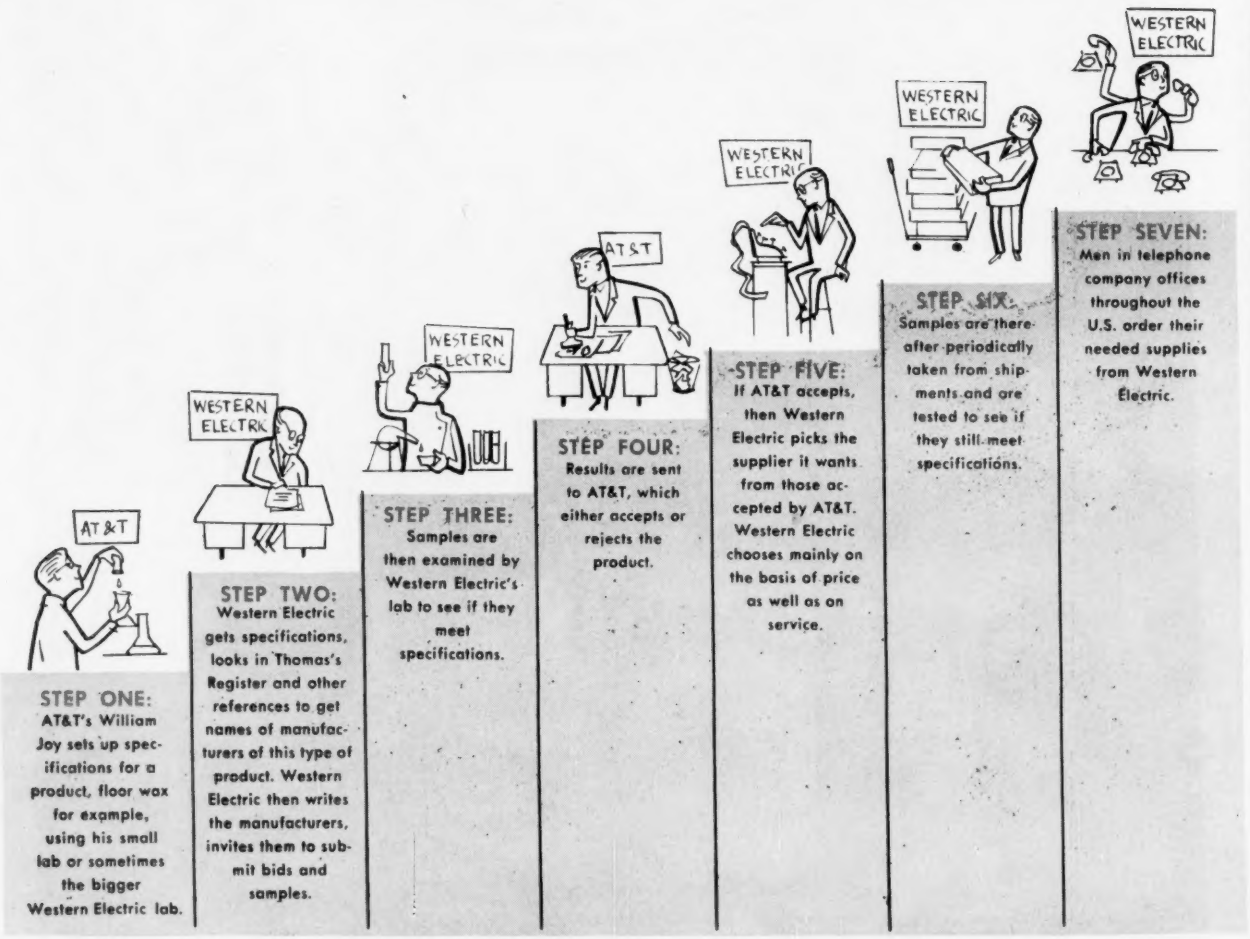
Dependable as a service for 2 generations



The Newest
KRAFTPACKER
will handle practically any free-flowing material—faster—and with more accuracy, than any open mouth bag filling machine of its type in use today—regardless of price!

☐ We are interested in improving our bag.
☐ We are interested in your Kraftpacker.

NAME OF COMPANY_____
ADDRESS_____
CITY_____ ZONE____ STATE_____ PRINCIPAL_____
PRODUCT MFD_____ CW


AT&T
STEP ONE:
AT&T's William Joy sets up specifications for a product, floor wax for example, using his small lab or sometimes the bigger Western Electric lab.
WESTERN ELECTRIC
STEP TWO:
Western Electric gets specifications, looks in Thomas's Register and other references to get names of manufacturers of this type of product. Western Electric then writes the manufacturers, invites them to submit bids and samples.
WESTERN ELECTRIC
STEP THREE:
Samples are then examined by Western Electric's lab to see if they meet specifications.
AT&T
STEP FOUR:
Results are sent to AT&T, which either accepts or rejects the product.
WESTERN ELECTRIC
STEP FIVE:
If AT&T accepts, then Western Electric picks the supplier it wants from those accepted by AT&T. Western Electric chooses mainly on the basis of price as well as on service.
WESTERN ELECTRIC
STEP SIX:
Samples are thereafter periodically taken from shipments and are tested to see if they still meet specifications.
WESTERN ELECTRIC
STEP SEVEN:
Men in telephone company offices throughout the U.S. order their needed supplies from Western Electric.

Seven Steps Sell Bell Its Specialties

Every morning last week there were several representatives of chemical specialty makers waiting on the seventh floor of American Telephone & Telegraph Co.'s New York headquarters to see Bill Joy. As the man who establishes specifications for the Bell Telephone System's yearly purchases of nearly $1 million worth of floor waxes, liquid soap, furniture polish, carbon paper, treated sweeping cloths, ink, waterless cleaner, and other specialties, he's a key contact for specialties sellers.

A product must meet Joy's specifications as the first step (*see diagram above*) in Bell System buying. Only then can it be bought by Western Electric, and made available to the Illinois Bell, Pacific Telephone, New York Telephone, or any other of the 21 affiliated operating companies.

What does Bell buy? Most of the principal items (*listed on p. 66*) are building maintenance supplies. No. 1 item is floor wax, since Bell has more than 15,000 buildings with a total resilient floor area of more than 100 million sq. ft.

The stripping and waxing of these floors costs about $3 million/year, of which over 90% is the cost of labor. Thus, it's easy to see why the telephone companies look at performance and ease of use before they look at price. AT&T needs a range of waxes that can be fitted into a maintenance program so detailed that it even includes how-to-dust training films. The program is aimed at getting the maximum efficiency out of the Bell System's 13,000 housekeepers.

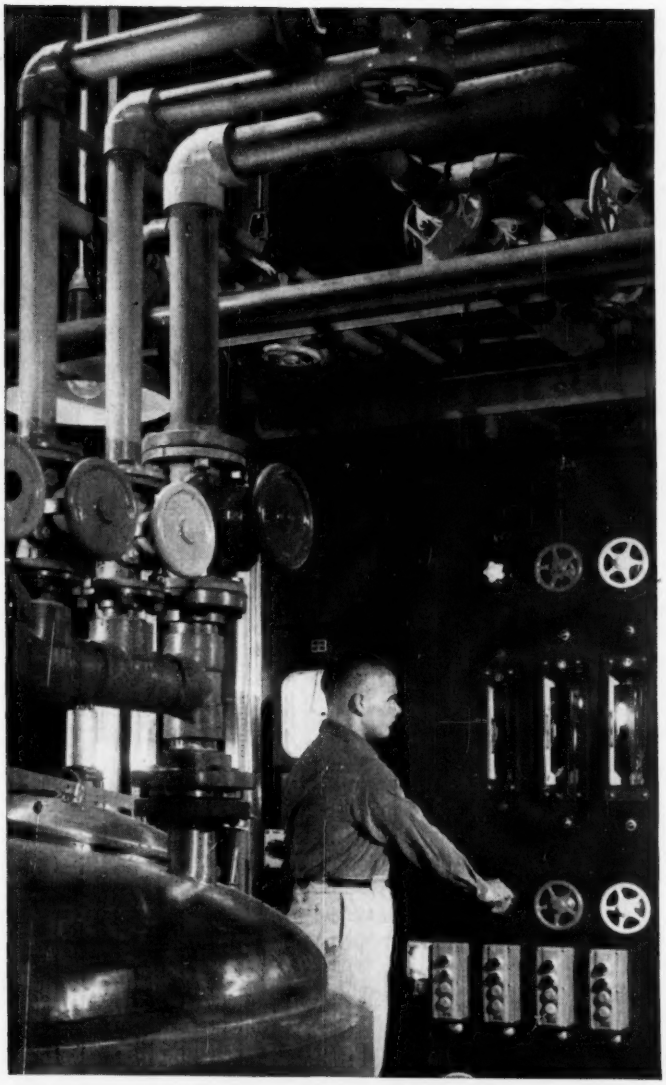
Safety First: Safety is of first importance—particularly with floor waxes. The public uses much of the floor area, along with 787,000 employees; consequently, the liability potential could be formidable. Some years ago, in fact, liability became so formidable that superintendents of several buildings abandoned waxing floors altogether.

Naturally, the floors deteriorated; so when the first slip-resistant resin emulsions became available in 1948, the Bell System became a pioneer user. Cooperative work with formulators helped developed the improved present-day finishes.

Spurring Substitution: It isn't uncommon for the telephone company to stimulate development work on maintenance materials when it is dis-

Another new development using

B.F.Goodrich Chemical *raw materials*



purity was the problem... GEON VINYL solved it!

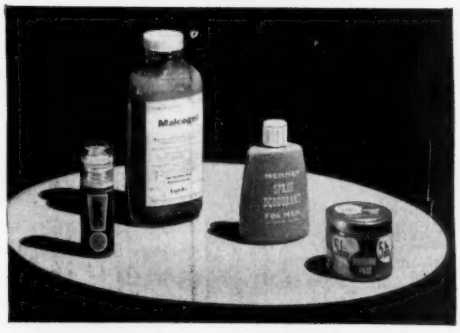
SINCE the fine chemicals processed in this plant react with metallic piping, and thus acquire impurities, a new material was needed.

Piping made from Geon rigid vinyl resin was the logical solution. This durable pipe does not react with the chemicals it carries. It offers superior resistance to oils, acids, alkalis, and most chemicals.

Rigid vinyl pipe of Geon was the *economical* solution too. It weighs only one-fifth as much as steel pipe of similar size, simplifying handling and shipping. It's easily installed, since pipe and fittings are joined quickly with solvent cement.

Geon is a remarkably diverse family of polyvinyl materials . . . star performers for rigid products like piping, valves, housings . . . flexible wall coverings, weatherstripping, foam products . . . coatings for steel, paper, or textiles. One member of the Geon family can surely help *you* make a better product, offer a better value. For information write Dept. S-3, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

Rigid vinyl piping *at the Rebeis Company, Inc., Berkeley Heights, N. J., handles fine chemicals used in many leading pharmaceutical and cosmetic products. Pipe and fittings for this installation were manufactured by Alpha Plastics Inc., Livingston, N. J.*

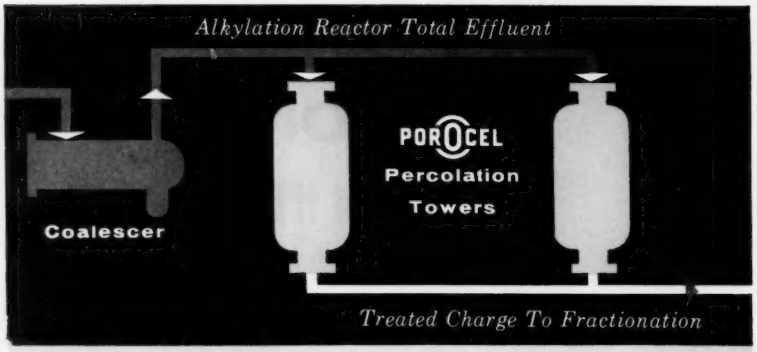


B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

MIN CHEMISTRY *at work*

case: Alkylation throughput increased, maintenance cut, with Porocel percolation step



The flow sketch shows where sorptive treatment (technique developed by DX-Sunray Oil Co., and M. W. Kellogg Co.) takes place in DX-Sunray's Tulsa Alkylation Unit.

EQUIPMENT REPORT: Simple 2-tower system handles total H_2SO_4 reactor effluent—one on stream while Porocel in the other undergoes unique in-place regeneration.

POROCEL ADSORBENT REPORT:

a. Removes more than 99% of acid and esters (caustic and water wash systems remove about 65%).
b. Virtually does away with corrosion and fouling in fractionating section.
c. Protects against maintenance troubles . . . permits pushing unit to higher capacity.
d. High cycle life . . . long cumulative life (over 150 bbls/lb.).
e. Improved TEL susceptibility; reduced H_2SO_4 consumption; no corrosion inhibitors needed in recovery section.

Our business is to supply low-cost nature-given minerals that are *process-engineered* to make things go smooth in your plant . . . good in your markets. Use the coupon.

MINERALS & CHEMICALS CORPORATION OF AMERICA
1246 Essex Turnpike, Menlo Park, N.J.

I'm interested in a natural mineral product in petroleum processing for

_____

Send: ☐ Detailed adsorbent literature ☐ Free samples

name_____ title_____

company_____

address_____

city_____ zone_____ state_____

MINERALS & CHEMICALS
CORPORATION OF AMERICA
1246 Essex Turnpike, Menlo Park, N.J.

Leaders in creative use of non-metallic minerals
ATTAPULGITE (*Attapulgus*)
ACTIVATED BAUXITE (*Porocel*)
KAOLIN (*Edgar • ASPs*)
LIMESTONE (*Chemstone*)
SPEEDI-DRI FLOOR ABSORBENTS

SPECIALTIES

Bell Telephone's Yearly Specialties Purchases

Floor wax (regular)	82,000 gal.
Floor wax W-8 (Ludox)	73,400 gal.
Antislip floor wax	66,000 gal.
Pyrophosphate cleaner	360,000 lbs.
Garage floor cleaner	35,000 lbs.
Disposable sweeping cloths	1,000,000 pieces (24x24 in.)
Scouring powder	144,000 14-oz. cans; 45,000 lbs. in 125-lb. drums
Furniture polish	13,000 qts.
Auto polish	15,000 pts.
Metal polish	Liquid, 20,000 pts. paste, 15,000 3-oz. cans
Liquid toilet soap	80,000 gal.
Cake toilet soap	2,500 gross of 4-oz. cakes
Waterless hand cleaner	60,000 5-oz. tubes; 21,000 1-pt. cans; 8,000 1-qt. cans
Writing ink	14,600 qts.
Ink eradicator	200,000 bottles
Type cleaner	18,000 qts.
Rubber cement	2,000 qts.

Paint for buildings, not covered by AT&T specifications, is bought by contract painters.

satisfied with available products. The Bell System helped develop a concentrated liquid hand soap, which can be diluted with hard water up to 500 ppm. without clouding, yet it won't corrode tin, brass or other metals. This soap has eliminated trouble with lather valves and has saved the cost of shipping water.

In many such cases, the company points out, Bell System orders can keep a product going until it catches on elsewhere. (Bell, however, is still virtually the sole user of the concentrate.)

Push for Competition: Coming up with a better specialty, however, doesn't automatically assure a manufacturer of the captive telephone system market without price competition. In fact, AT&T will cover the latest improvements in specifications that are made available to anyone who wants to try to meet them.

After AT&T comes up with a list of products that are acceptable to it, Western Electric looks at price. Generally speaking, the firm with the lowest price offer will get the contract—if WE is confident that the firm can give

Market Newsletter

CHEMICAL WEEK
March 2, 1957

With the second-quarter pivot-point for price changes approaching, new schedules for contract sales are now being posted by chemical producers. Last week, for example, a price boost on calcium chloride was initiated by Dow. It will likely become general throughout the industry, although other producers early this week admitted only that "the problem is being studied."

The hikes, which will increase the cost of road building and maintenance, will go into effect April 1 on contract sales. New tabs for carload lots of flake chloride: up $2, to $31/ton in 100-lb. bags; up $6, to $45/ton in 25-lb. bags. Pellet material, in carlots, will go up $2.40, to $37.80/ton.

•

Up, too, is the cost of liquid ferric chloride, the grade used for sewage and water treatment (*see p. 58*). The new tank-car price posted by Pennsalt—up 25¢/cwt.—is $3.75/cwt. (anhydrous basis); it goes into effect April 1 on contract orders.

•

And cellophane prices have been raised an average of 5% by American Viscose and by Olin Mathieson, the same firms that led the parade 18 months ago, when the last boost went into effect. Spokesmen for Avisco cite increased labor and raw materials costs to explain the current increase.

•

Zirconium prospects look better than ever, at least to U.S. Industrial Chemicals. Initial production capacity of USI's new zirconium plant (now under construction at Ashtabula, O., and scheduled to go onstream in the second quarter of this year) is being boosted from 1.5 million to 2 million lbs./year.

One million pounds/year of the firm's reactor-grade zirconium will go to AEC under a five-year contract. On the open market, hafnium-free zirconium sponge or platelets will be sold at prices ranging from $4.75 to $6.50, depending on quantity, compared with the present price of $12/lb. for sponge. Commercial-grade zirconium—not hafnium-free—will sell for about $1.50 less than the pure material.

•

Fertilizer makers have a new source of phosphoric acid. USI's "wet-process" plant at Tuscola, Ill., now onstream, will be able to turn out 30,000 tons/year of P_2O_5, which is equivalent to about 60,000 tons/year of 75% phosphoric acid.

•

Also completed is a new reforming-catalyst plant built at Curtis Bay, Baltimore, by Davison Chemical. The catalyst—platinum on alumina—will be used by refineries to boost the octane level of gasolines.

Capacity of the $1.5-million installation is not revealed, but is said to be double that originally planned. A partial startup was made in mid-'56, and full-scale operation will be reached this year.

•

Total U.S. production of fatty acids last year dropped 3% to 405.6 million lbs., from 418.9 million in '55, according to the Fatty Acid Producers' Council. But this does not include an estimated 80 million lbs. of fatty acids made from tall oil.

Total sales of fatty acids—including 20.8 million lbs. of intra-industry sales—was 421 million lbs., or about 6% less than in '55. Stocks were increased by about 15 million lbs. during the year.

•

Citric acid production in England is getting a big boost; total output by the U.K. may be increased by 70% by '58. First stage of a $700,000 expansion program by J. and E. Sturge (Birmingham and Selby) has been completed well ahead of schedule; and finishing touches will be put on about a year from now, instead of in Jan. '59, as originally planned. The expansion will help meet growing demand by domestic and overseas markets. Too, the extra acid—some of which will be available for the approaching summer season—will also help British consumers side-step the higher prices of imported material.

•

British fertilizer imports—and their costs—climbed last year. Total imports of rock phosphate in '56 increased 5%, to 1,156,000 tons; but the total cost (including shipping charges) was 20% higher than in '55.

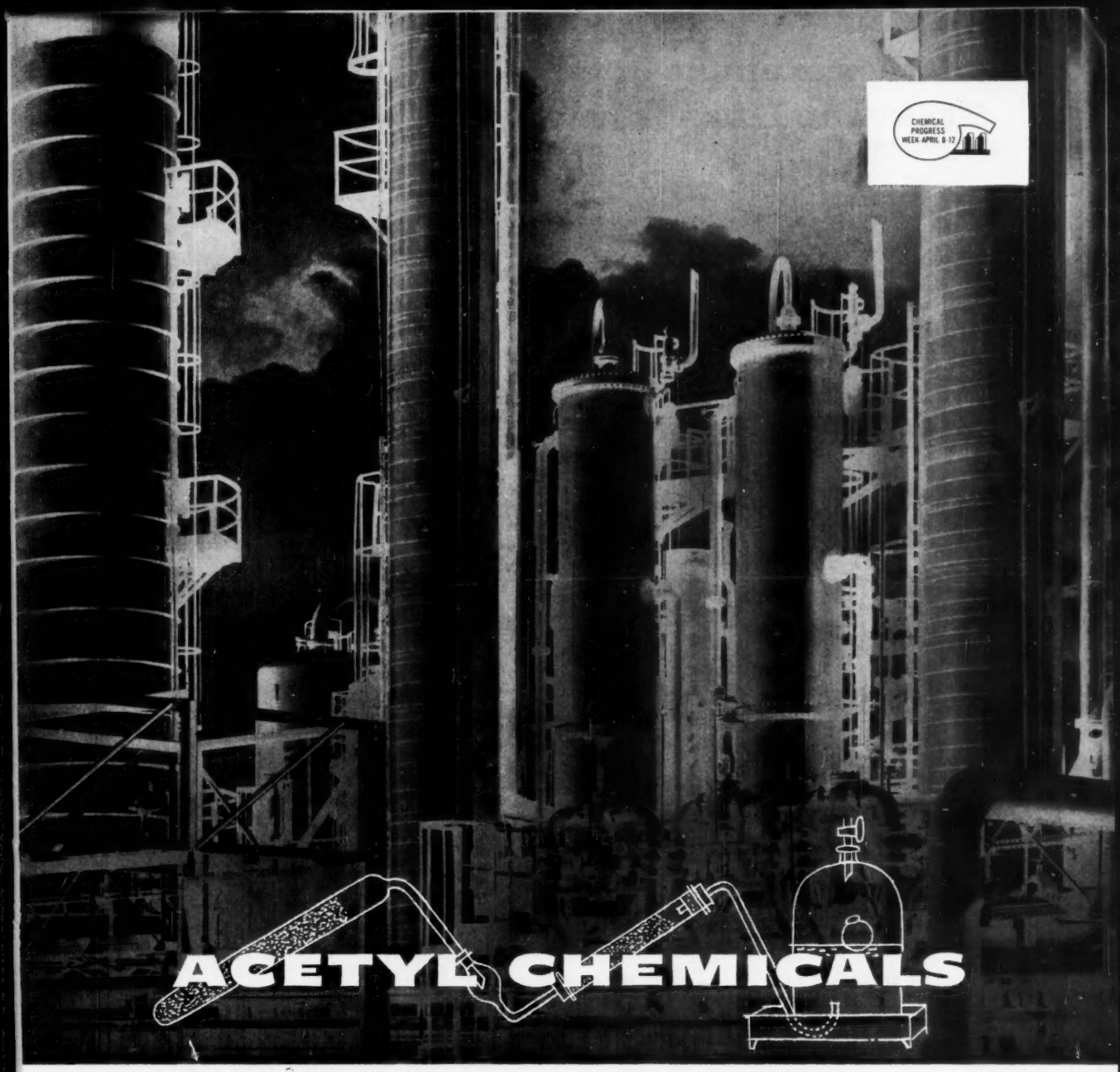
Basic slag imports in '56 amounted to 91,673 tons, or 10,000 tons more than in '55; the cost was 12% higher than in '55. Potassium chloride imports last year increased 10%, to 554,900 tons, while the cost was up 12.5%.

However, imports of two fertilizer materials—bone meal and potassium sulfate—decreased 5,000 tons and 1,000 tons, respectively.

SELECTED PRICE CHANGES—Week Ending Feb. 25, 1957

	Change	New Price
UP		
Calcium chloride flake, 77-80%, paper bags, c.l. wks., frt. equald., per ton	$ 2.00	$31.00
DOWN		
Copper carbonate, 55%, bgs., c.l., wks.	0.0075	0.34
Cuprous chloride, dms., wks.	0.01	0.43
Copper, metal, electrolytic, dlvd., Valley basis	0.02	0.32
Copper oxide, black, bbls., 100-1,999-lbs. lots, wks.	0.015	0.50
Copper sulfate, C&P, gran., dms., wks.	0.005	0.1980

All prices per pound unless quantity is stated.



born in 1814 . . . a two-billion-pound industry today!

When Jöns Berzelius revealed the chemical composition of acetic acid in 1814, science took the first step toward the development of today's multibillion-pound acetyl chemical industry. As one of the world's large petrochemical producers, Celanese delivers a broad range of these chemicals in millions of pounds by tanker, barge, highway and rail, with time-table dependability.

A reliable source for industry, the Celanese petrochemical plants at Bishop and Pampa, Texas, provide a volume supply of: acetic acid, acetaldehyde, acetic anhydride, n-butyl alcohol and acetate, n-propyl acetate, sodium acetate, vinyl acetate and propionate monomer, and pentaerythritol.

Meeting the needs of industry with specialized and basic chemicals . . . distributing these in continuous commercial quantities . . . providing assistance to make these chemicals work to improve end products—these are part of the Celanese program that contributes to the progress of industry.

Celanese Corporation of America, Chemical Division, Dept. 552-C, 180 Madison Avenue, New York 16, N .Y.

Celanese®

Basic reasons . . . . . .

Acids	Functional Fluids	Polyols
Alcohols	Gasoline Additives	Plasticizers
Aldehydes	Glycols	Salts
Anhydrides	Ketones	Solvents
Esters	Oxides	Vinyl Monomers

Celanese CHEMICALS

. . . . . for improved products

Agricultural, automotive, aviation, building, electrical, paper, pharmaceutical, plastics, surface coatings, textile.

Another example of STANDARD-HERSEY leadership!

**a specially designed self-aligning joint flange was developed which permitted the dryer to be installed in an "inaccessible" location.*

It's more than Standard Steel's routine of good design, quality materials and skilled workmanship that sells *Standard-Hersey* dryers... often it's the unusual engineering *ability to solve a difficult problem.* Time and time again new and old customers alike come to Standard Steel.

For more than 50 years, Standard Steel has developed dryers for many segments of American industry... handling difficult drying jobs with trouble-free, efficient and economical service.

No matter the drying job... nor how difficult the problem,

LOOK TO STANDARD! Write today for our dryer bulletin.

STANDARD STEEL CORPORATION

THE STANDARD FOR 54 YEARS

STANDARD HERSEY DRYERS

5010 Boyle Avenue, Los Angeles 58
15 Park Row, New York 38
Decatur 10, Illinois

PILOT TESTING

ORGANIC PEROXIDES

CATALYSTS FOR POLYMERIZATIONS
DRYING ACCELERATORS • OXIDATION AGENTS • BLEACHING AGENTS

LUCIDOL* (BENZOYL PEROXIDE)

LUPERCO* (PEROXIDE COMPOUNDS)

ALPEROX* C (TECHNICAL LAUROYL PEROXIDE)

LUPEROX* (PEROXIDE PASTES)

LUPERSOL* (PEROXIDE SOLUTIONS)

SPECIAL ORGANIC PEROXIDES

WAREHOUSE STOCKS CONVENIENTLY LOCATED THROUGHOUT THE COUNTRY

*REGISTERED TRADE MARK

LUCIDOL DIVISION
WALLACE & TIERNAN INCORPORATED
BUFFALO 5, NEW YORK

the kind of service and dependability required.

(Unsuccessful seekers of Bell business are told only whether they failed to meet either the specifications or the price or both.)

Not all of the purchasing is done through basic manufacturers. Some products are bought from distributors. Somewhat to WE's surprise, it found that a distributor often offers an item at a lower price than the manufacturer. Reason, apparently, is that distributors are usually more conscious of price-competition realities.

Signed, Sealed. . .: Successful applicants are given one of several types of one-year contracts. One guarantees no volume of purchasing—the supplier is simply guided by the amount the telephone companies have bought in the past. Other suppliers—including makers of tailor-made products—are given contracts calling for a definite amount over a period of a year. They are expected to keep Bell's stock of the products between given minimum and maximum amounts. If the telephone companies don't use the contracted-for amount in the year, the supplier is usually asked to extend the contract. This happens some 70% of the time. In other cases, Bell will pay for the total order, but will ask the supplier to hold the material. Very seldom does Bell pay for and take the remainder in a lump delivery.

As purchase volume on an item increases, additional sources of supply are developed. Not only does this protect Bell's supply in case a strike or disaster cuts one source off, but also it has been found that the resultant rivalry usually improves quality, service and price. If at all possible, the Bell System likes to have the various suppliers well dispersed geographically, to cut transportation costs and improve service.

The Bell System is not capricious in changing its sources of supply. The average supplier has been doing business with Bell for many years—several for more than 10. Before a source is changed on a basis of technical quality or new developments, the product to be substituted is field-tested for as long as a year.

Blind Date: To avoid confusing its maintenance men, Bell requires that each product carry a standard Bell System label furnished by the manufacturer. Only a small key letter indi-

TOMORROW'S PRODUCTS TODAY...THROUGH ENJAY PETROCHEMICALS

Basic raw materials for DETERGENTS that get clothes cleaner—faster!

As every housewife knows . . . getting clothes (or dishes or anything) bright and clean isn't half the chore it used to be before she started using today's super-cleaning detergents.

And vital ingredients in the manufacture of these new detergents are Enjay Tridecyl and Ethyl Alcohols and Enjay Tripropylene and Tetrapropylene. Other petrochemicals from Enjay—one of the world's foremost suppliers—play an important role in the manufacture of many other exciting new products for modern living.

The facilities of the famous Enjay Laboratories have just been enlarged to better serve you . . . in finding new ways that Enjay petrochemicals can help you. Call or write for additional information.

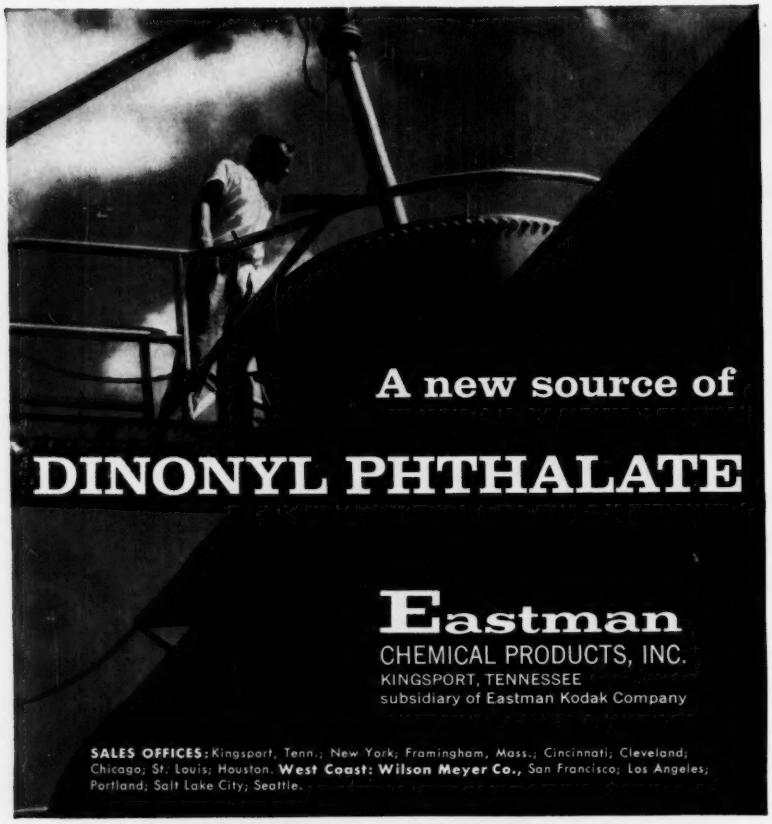
Enjay offers a widely diversified line of petrochemicals for industry:

ALCOHOLS & SOLVENTS: Lower Alcohols, Oxo Alcohols, Ketones and Solvents; OIL & FUEL IMPROVERS: Detergent-Inhibitors, V-I Improvers, Oxidation Inhibitors; CHEMICAL RAW MATERIALS: Olefins, Diolefins, Aromatics; ENJAY BUTYL RUBBER & VISTANEX.

ENJAY

Pioneer in Petrochemicals

ENJAY COMPANY, INC., 15 W. 51st STREET, NEW YORK 19, N. Y. Akron, Boston, Chicago, Los Angeles, New Orleans, Tulsa


A new source of
DINONYL PHTHALATE
Eastman
CHEMICAL PRODUCTS, INC.
KINGSPORT, TENNESSEE
subsidiary of Eastman Kodak Company
SALES OFFICES: Kingsport, Tenn.; New York; Framingham, Mass.; Cincinnati; Cleveland; Chicago; St. Louis; Houston. West Coast: Wilson Meyer Co., San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

ETHER
needn't be
hazardous

Commercial users of Ether, such as the manufacturers of smokeless powder, know that the vapor is highly explosive and narcotic. Yet, it can be handled without hazard by a Barnebey-Cheney Automatic Solvent Recovery System . . . which not only removes the hazard but recovers Ether for repeated use at a cost of only 2¢/gal. From 60¢ (original cost) to 2¢ is a savings that soon amortizes your investment in recovery equipment.

WRITE for free Bulletin 821-52 on safe handling and recovery.

BARNEBEY-CHENEY
Columbus 19, Ohio — St. Johns, Quebec

Sodium Fluoride
Hydrofluoric Acid
70-75% and 48%

BERKSHIRE CHEMICALS
ISCO
Ammonium Bifluoride
Magnesium Silicofluoride
Zinc Silicofluoride

BERKSHIRE CHEMICALS, INC.
420 LEXINGTON AVENUE • NEW YORK 17
55 New Montgomery St. • San Francisco 5. Calif.
Innis Speiden Company Division
New York • Philadelphia • Boston • Cleveland • Chicago

SPECIALTIES

cates the maker. It has been found that maintenance men, happy with a product under one label, tend to become automatically unhappy with the same material under another label. Bell also saves here by not paying brandname prices.

The Bell System expects several things from suppliers, aside from their having a reasonable price and meeting specifications—not only their letter but also their spirit. (If polish specifications call for between 2.5% and 3% silicone, the maker is expected to aim for 3%.) It, of course, wants good service on orders, and therefore likes to deal with manufacturers who have warehouses in all parts of the country. A supplier is expected to have a quality control setup, and to be able to give some field service in the event of difficulty. Furthermore, AT&T expects to get some technical aid on specifications, testing procedures, and product application.

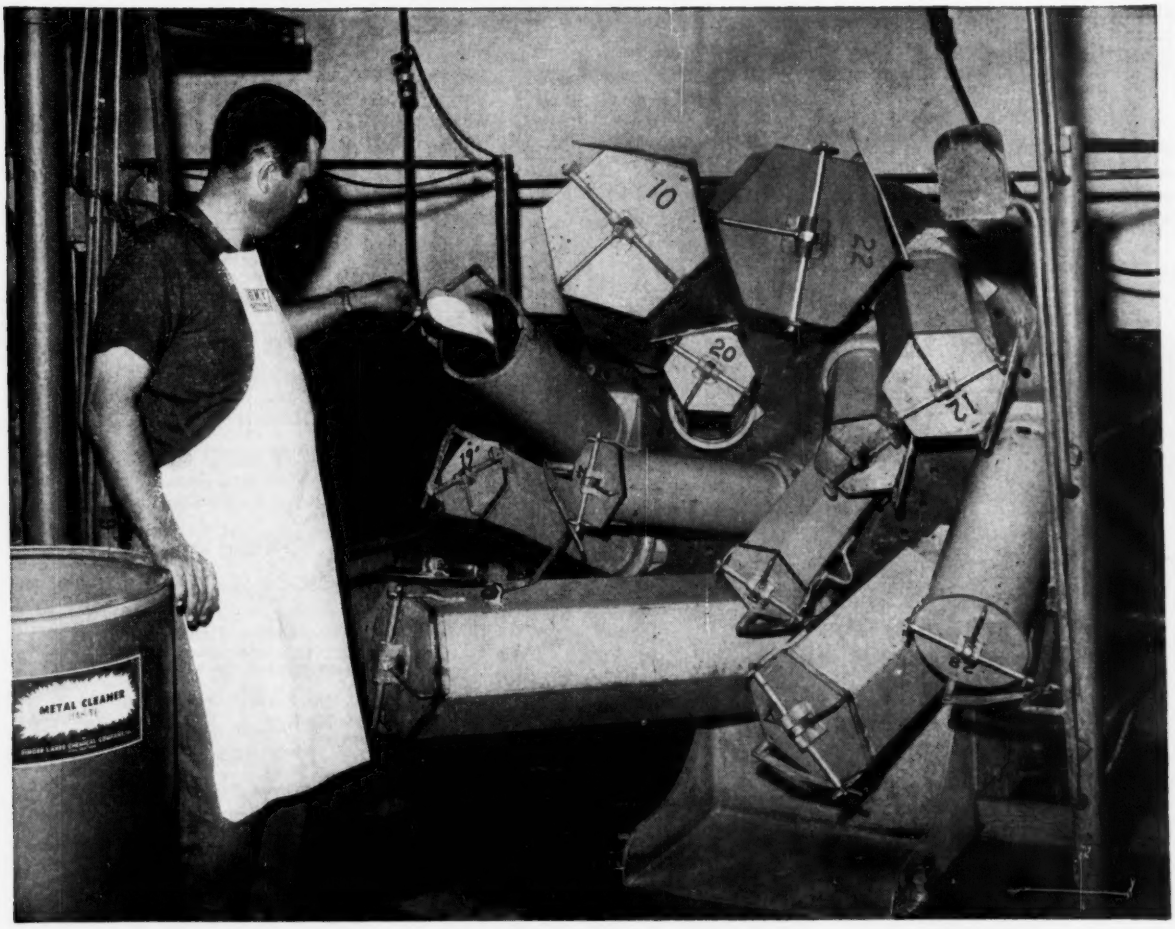
The Bell System wants to be told of worthwhile new developments. But it cautions that specialties representatives, to sell to Bell, must have a good technical knowledge of their product. AT&T asks a lot of questions before it's convinced that it should spend money on tests.

PRODUCTS

Sea Change: Dunham Chemical Co. (Chicago), a subsidiary of National Cylinder Gas, has come up with a detergent, Planisol, for cleaning tanker vessels. The new product makes it possible to switch a tanker's cargo of crude oil to a cargo of edible oil or even grain for the return trip, according to the company. The ship's tanks are cleansed by using a hot-water solution of the detergent. The material is applied via a hose equipped with a spinning nozzle. Scrubbing of tanks is not required. The material comes as a white, granular product. It contains sodium alkyl aryl benzyl silicate.

•

Acrylics in Canada: Canadian Industries Ltd. has just introduced an exterior acrylic emulsion paint. The product, called Endurite, is intended for exterior use on stucco, masonry, brick and asbestos shingle siding. Distribution will be through CIL paint dealers throughout Canada. It will be sold in 1-gal. and 1-qt. containers.



PRECISION METAL FINISHING—Tumbling compounds play a key role in barrel finishing. Here, Lakeseal Metal Cleaner, based on CMC, is being added to tumbling barrels at BMT Manufacturing Company. Lakeseal Metal Cleaner is a product of Finger Lakes Chemical Company, Ithaca, New York.

Barrel Finishing Costs Tumble with CMC

The selection of the right tumbling compound in barrel finishing improves product quality and lowers manufacturing costs. The value of Hercules® CMC in barrel finishing compounds serves as another example of the wide usage of this versatile chemical ingredient. Finger Lakes Chemical Company has found that the use of CMC for suspension and lubrication in its Lakeseal Metal Cleaner results in an improved metal finishing operation.

Perhaps CMC holds the key to improvement of one of your existing products. As a viscosity control agent, water binder, suspending agent, or film-former, CMC has been finding applications in industries ranging from textiles to paper, ceramics to detergents.

Write today for testing samples of CMC, indicating proposed uses so that we can determine the proper types for your particular need.

Virginia Cellulose Department

HERCULES POWDER COMPANY

INCORPORATED

992 Market Street, Wilmington 99, Del.

VE57-1

EMPLOYMENT OPPORTUNITIES

IN THE CHEMICAL PROCESSING INDUSTRIES

- **Displayed Rate**—$38.00 per inch effective Jan. 1957. Frequency rates on request. Advertising inch measures ⅞ inch vertically on one column. Subject to Agency Commission. 3 columns to a page.
- **Closing Date**—Each Tuesday, 11 days prior to publication date

NATIONAL COVERAGE

- **Undisplayed Rate**—$1.80 a line, minimum 3 lines. To figure advance payment, count 5 average words as a line. 10% discount if full payment made in advance for 4 consecutive insertions. Position wanted ads ½ above rate
- **Box Numbers** count as one additional line

Send NEW ADS & INQUIRIES to Classified Adv. Div. of Chemical Week; P O Box 12, N.Y. 36, N Y.

UNIQUE POSITION OPEN

Seeking a man with a degree in chemical engineering or in chemistry having a strong mathematical interest with at least three years experience in the petroleum or petrochemical field or a man with a degree in mathematics with chemical engineering training for work on petroleum and petrochemical problems utilizing a wide range of mathematical background in the operations research field. Experience desired three to ten years. Mid-West location.

Reply P4416.
Chemcal Week
520 N. Michigan Ave.,
Chicago, 11, Ill.

COLOR SPECIALIST

A large nationally recognized firm in the Rockland County, New York area, desires to employ a color specialist to work under Product Development Manager, advise Production Department, and act in an advisory and creative capacity to the Sales Promotion Department.
Must be able to advise color matcher, consult with promotional group to choose new shades, etc., keep abreast of seasonal changes in color styles in textiles, assist the Development Department with ideas and recommendations, set up color standards for technical groups in other plants, work with stylists, promotional and technical personnel.
Prefer some industrial experience, a working knowledge of pigments, etc. used in the cosmetic industry. Some training or experience in chemistry, physics and/or art would be helpful.

Age—35-45
Salary—open

Please submit full resume to

Box P-4393 Chemical Week

Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Space Salesmen Wanted

We are looking for sales trainees to sell advertising space for CHEMICAL ENGINEERING or CHEMICAL WEEK. No selling experience necessary. Age requirement 21-30 years. Opportunities unlimited. Send complete résumé or phone for appointment. Contact Steven J. Shaw, Advertising Sales Manager, CHEMICAL ENGINEERING • CHEMICAL WEEK, McGraw-Hill Publishing Co., 330 W. 42nd St., New York 36, N. Y. Phone: LOngacre 4-3000. Ext. 693.

MANUFACTURING ADMINISTRATOR

Medium sized, fast growing (30% per year since 1948) Chemical manufacturer looking for top manufacturing executive to assume production responsibilities for multi-plant operations. This man will be considered a part of the policy level management and included in profit-sharing plan. Excellent opportunity for young (35-45 years) man now plant manager of large plant with big company who desires more responsibility with corresponding authority. Prefer chemical engineer with petrochemical background and/or wide experience with unit processes. Our employees know of this ad. Send resume to:

P-4394 Chemical Week
520 N. Michigan Ave., Chicago 11, Ill.

Position Vacant

Wanted—Salesman of dyestuff and pigment intermediates for manufacturer and distributor of very wide range of intermediates with established business and excellent expansion possibilities. Submit detailed resume of education and previous experience. P-4377, Chemical Week.

Positions Wanted

Chemical Sales Executive or Specialist—B.S.— Age 42, Mature, aggressive, experienced in sales of chemical, resinous and plastic raw materials. Directed sales staff functions for top name chemical company. Traveled extensively in 8 Midwestern states. Will relocate. Resume will provide personal and achievement record. PW-4361, Chemical Week.

Junior Executive—30—B.S. Chem.—M.B.A. 3 years experience marketing organic chemicals to foreign accounts, seeks management opportunity with future. PW-4405, Chemical Week.

Chemical Manager, with broad background in equipment design and construction, operations, and product development in organic agriculture chemicals desires connection in Southern California. Have Master's Degree in organic, ability to handle people, top references, and successful record. Age 41. PW-4436, Chemical Week.

DON'T FORGET
the box number when answering advertisements. It is the only way we can identify the advertiser to whom you are writing.

TRACERS

- **USED/SURPLUS EQUIPMENT**
- **CHEMICALS WANTED/OFFERED**
- **SPECIAL SERVICES**
- **BUSINESS OPPORTUNITIES**
- **Closing Date**—Each Tuesday, 11 days prior to publication date.

Send NEW ADS & INQUIRIES to Classified Adv. Div. of Chemical Week; P.O. Box 12, N.Y. 36, N.Y.

FOR SALE

AT TALLANT, OKLAHOMA—

One Used Methylal Unit Manufactured by Blaw-Knox In March, 1954.

PRICE $5,000.00

CITIES SERVICE OIL CO.
Patridge,
Bartlesville, Oklahoma.

SURPLUS CHEMICALS WANTED

Chemicals—By-Products—Plasticizers
Pigments—Resins—Solvents
CHEMSOL, INC.
70 Dod Street, Elizabeth, N.J. EL 4-7654

BUYERS OF SURPLUS

CHEMICALS—OILS—SOLVENTS
DRUGS—RESINS—WAXES
PLASTICS—COLOR—ETC.
BARCLAY CHEMICAL COMPANY, INC.
75 Varick Street New York 13, N. Y.
WORTH 4-5120

SURPLUS WANTED
CHEMICALS, PHARMACEUTICALS, OILS
PLASTICIZERS, RESINS, DYES
SOLVENTS, PIGMENTS, ETC.
CHEMICAL SERVICE CORPORATION
96-02 Beaver Street, New York 5, N. Y.
HAnover 2-6970

SMALL CHEMICAL MFG. BUSINESS
ORGANIC & INORGANIC
FOR SALE
DUE TO RETIREMENT
BO 4440 Chemical Week
Class. Adv. Div. P. O. Box 12,
N. Y. 36, N. Y.

For Sale

Heavy Duty Double Arm Sigma Blade Jacketed Mixers Lab. size up to 200 gal. Steel and stainless steel. Perry Equip. Corp., 1415 N. 6th St., Phila. 22, Pa.

Sparkler Model #33-5-28 Filters, steel plates; 151 sq. ft. surface area. Built 1953. Perry Equip. Corp., 1415 N. 6th St. Phila. 22, Pa.

Sharples Co. Super-D-Hydrator T316 stainless steel, model C-20 type #BM125A-51D. Late model. Perry Equip. Corp., 1415 N. 6th St., Phila. 22, Pa.

Plants & Properties

Chemical manufacturing plant, complete, modern, for sale or lease. FS-4230, Chemical Week.

Wanted

Machinery Wanted Stokes Tabletting presses— F4-F-E-T4, Mansol Ceramics Co. Belleville, N. J. Plymouth 9-8600.

MANAGEMENT SERVICES

- General Consulting
- Management
- Patents
- Systems Engineering
- Instrumentation
- Equipment Design
- Catalyst Development
- Translation
- Chemical & Bacteriological Analysis

BERG BOAT COMPANY

Specialists in
MARINE TRANSPORTATION OF CHEMICALS
Transportation Systems
Coastwise and Inland Waterways
Studies—Reports—Contracts
Frederick C. Berg—Marine Engineer
Georgetown, Maryland—Telephone Coolitan 4805

D. H. KILLEFFER

- TECHNICAL PUBLICITY
- TECHNICAL SALES LITERATURE
- ANNUAL REPORTS
- COMPANY HISTORIES
- BIOGRAPHIES
- TECHNICAL GHOST WRITING

Telephone: SPencer 9-6821
168 Westchester Avenue Tuckahoe 7, N. Y.

THE C. W. NOFSINGER CO.

"In Engineering, It's the PEOPLE that Count"
Engineers and Contractors for the Petroleum and Chemical Industries
906 Grand Ave. • Kansas City 6, Missouri
Phone BAltimore 1-4146

JAMES P. O'DONNELL

Consulting Engineer
Professional Engineering for the Petroleum and Process Industries
39 Broadway
New York 6, N. Y.
Beaumont, Texas Tulsa, Oklahoma

SIRRINE

ENGINEERS
Plant design & Surveys covering Chemical Electrochemical and Metallurgical Production; Industrial Waste Disposal; Water Supply & Treatment; Analysis & Reports
J. E. SIRRINE CO.
Greenville South Carolina

CONSULT THESE SPECIALISTS . . .

when you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

CHEMICAL WEEK invites other consultants to list the special services they offer on these pages.

FRED LODES, newest of a new breed of industry consultants who give . . .

Answers About Aerosols

Keeping abreast of the fast-moving aerosol industry is no easy job. But it's absolutely essential for a firm to know what's going on, or it may find itself staring at the heels of a competitor who's been a little quicker to spot and to take action on new aerosol developments.

In a field where being first with a new idea almost always guarantees sales leadership, how can specialty makers keep up with aerosol developments—especially when such an enterprise is a company sideline rather than its major field of business? One way: by retaining an aerosol consultant.

In the short life of the aerosol industry some half-dozen of these independent consultants have come on the scene. Among them: Robert Foresman Jr., Elmer Bonneville and Winston Reed. Last week, a *CW* editor asked Fred Lodes—now a consultant, yet one of the graybeards of the aerosol industry because of his pioneer work on propellents with General Chemical and his cofounding of Precision Valve Corp.—for an outline of the role of the aerosol consultant.

Lodes divides the role of consultants into three large areas:

- **Technical:** what formulation to use, which gases, which fillers.
- **Foreign:** how to sell overseas, what sort of products are most in demand, which marketing and technical drawbacks to expect.
- **Surveys:** whether to buy into a

going concern, merge with another, etc.

Some consultants don't cover all these phases, prefer to specialize on one area—e.g., unit filling problems.

To keep up with the field, consultants usually work first-hand with fillers and machinery manufacturers. Lodes, for one, makes yearly trips to Europe to study the problems there.

Being a consultant sometimes brings unexpected chores. Consultants often find themselves becoming clearing houses for personnel, are often asked to find a buyer for a company wanting, say, to dispose of 200,000 aerosol cans. Lodes, in fact, was once asked to act as mediator for a company whose management was split on how to proceed on a problem concerning product development.

Will the number of aerosol consultants stay at about its current level, or is a big increase in the cards? Consultants are quick to point out that right now they share the field with general consulting firms that have aerosol specialists, and with firms in the aerosol industry itself that sell their own consulting services. All types will increase as the industry continues its growth.

As Lodes, in estimating that some 356 million units will be filled in '57, puts it: "We haven't yet scratched the surface of the market."

CHEMICAL WEEK • ADVERTISERS INDEX

March 2, 1957

ALLIED CHEMICAL & DYE CORP. NITROGEN DIV. 53
Agency—G. M. Basford Co.

ALUMINUM CO. OF AMERICA 43
Agency—Ketchum, MacLeod & Grove, Inc.

AMERICAN CYANAMID CO. ORGANIC CHEMIAL DIV. 3
Agency—Hazard Adv. Co.

AMERICAN CYANAMID CO. 38-39
Agency—Hazard Adv. Co.

ARCHER DNIELS MIDLAND CO. 29
Agency—The Bayless-Kerr Co.

ATLANTIC REFINING CO. 47
Agency—N. W. Ayer & Son, Inc.

BAKER & ADAMSON PRODUCTS, CHEMICAL & DYE CORP. ..... 4th Cover
Agency—Atherton & Currier, Inc.

BARNEBEY CHENEY CO. 72
Agency—Byer & Bowman Adv. Agency

BARRETT DIV., ALLIED CHEMICAL & DYE CORP. 51
Agency—McCann-Erickson, Inc.

BECKMAN INSTRUMENTS, INC. .. 3rd Cover
Agency—Charles Bower Adv., Inc.

BITUMINOUS COAL INSTITUTE 7
Agency—Vansant, Dugdale & Co., Inc.

BUCKEYE CELLULOSE CORP. 20
Agency—Greenhaw & Bush, Inc.

CARBIDE & CARBON CHEMICALS CO. DIV. OF UNION CARBIDE & CARBON CORP. 27
Agency—J. M. Mathes, Inc.

CELANESE CORP. OF AMERICA 69
Agency—Ellington & Co., Inc.

COLUMBIA SOUTHERN CHEMICAL CORP. 49
Agency—Ketchum, MacLeod & Grove, Inc.

COMMERCIAL SOLVENTS CORP 41
Agency—Fuller & Smith & Ross, Inc.

CONTINENTAL CAN CO. METAL DIV. .. 23
Agency—Batten, Barton, Durstine & Osborne, Inc.

CRAWFORD & RUSSELL, INC. 52
Agency—PS Advertising, Inc.

DIAMOND ALKALI CO. 45
Agency—Fuller & Smith & Ross, Inc.

DOW CHEMICAL CO., THE 59
Agency—MacManus, John & Adams, Inc.

DU PONT de NEMOURS & CO., INC. E. I., POLYCHEMICALS DEPT. 18-19
Agency—Batten, Barton, Durstine & Osborne, Inc.

EASTMAN CHEMICAL PRODUCTS, INC. 2, 72
Agency—Fred Wittner, Adv.

ENJAY COMPANY INC. 71
Agency—McCann-Erickson, Inc.

FISHER SCIENTIFIC CO. 50
Agency—Smith, Taylor & Jenkins, Inc.

GAYLORD CONTAINER CORP., DIV. OF CROWN ZELLERBACH CORP. 38
Agency—Oakleigh R. French & Assoc, Inc.

GENERAL AMERICAN TRANSPORTATION CORP. TANK CAR DIV. 33
Agency—Edward H. Weiss & Co.

GOODRICH CHEMICAL CO., B. F. 65
Agency—Griswold-Eshleman Co.

GOODYEAR TIRE & RUBBER CO. 1
Agency—Kudner Adv. Agency

HERCULES POWDER CO. 73
Agency—Fuller & Smith & Ross, Inc.

HOOKER ELECTRO CHEMICAL CO. 11
Agency—Charles L. Rumrill & Co.

KAY FRIES CHEMICALS INC. 5
Agency—Richard Lewis Adv.

KRAFT BAG CORP. 63
Agency—Arthur A. Judson, Inc.

LOCKWOOD GREENE ENGINEERS, INC. 62
Agency—The House of J. Hayden Twiss

LUCIDOL DIV. WALLAC & TIERNAN 70
Agency—Barber & Drullard, Inc.

MINERALS & CHEMICALS CORP OF AMERICA 66
Agency—Richardson, Thomas & Bushman, Inc.

NORFOLK & WESTERN RAILWAY 57
Agency—Houck & Co., Inc.

PENNSYLVANIA DEPT. OF COMMERCE .. 59
Agency—Kastor Farrell Chesley & Clifford Inc.

PROPORTIONEERS, INC. DIV. OF B-I-F INDUSTRIES, INC. 60
Agency—Horton, Church & Goff, Inc.

PUBLICKER INDUSTRIES, INC. 30-31
Agency—Al Paul Lefton Co., Inc.

ROHM & HAAS CO. 35
Agency—Arndt, Preston, Chapin, Lamb & Keen, Inc.

RUBBER CORP. OF AMERICA 62
Agency—Ovesey & Straus, Inc.

SEABOARD AIRLINE RAILROAD 60
Agency—The Caples Co.

SHELL CHEMICAL CORP. 8
Agency—J. Walter Thompson Co.

SMITH, INC. WERNER G. 44

STANDARD STEEL CORP. 70
Agency—The McCarty Co.

STEPAN CHEMICAL CO. 4
Agency—Frank C. Nahser, Inc.

TENNESEE CORP. 54
Agency—Crawford & Porter, Inc.

VANDERBILT CO. THE R. T. 12
Agency—PS Advertising Inc.

WEST END CHEMICAL CO. 61
Agency—Norton M. Jacobs Co.

WESTVACO MINERAL PRODUCTS DIV. FOOD MACHINERY & CHEMICAL CORP. ..2nd Cover
Agency—James J. McMahon, Inc.

WOLF & CO., JACQUES 34
Agency—Riedl & Freede, Inc.

JOHN ZINK CO. 28
Agency—Edward Spilman, Inc.

tracers SECTION

(Classified Advertising)

F. J. Eberle, Business Mgr.

CHEMICALS: Offered/Wanted 74
EMPLOYMENT 74
EQUIPMENT: Used/Surplus New For Sale 74
WANTED 74
MANAGEMENT SERVICES 75
SPECIAL SERVICES 74

ADVERTISING STAFF

Atlanta 3 ..... Robert H. Powell 1301 Rhodes-Haverty Bldg., Jackson 3-6951

Boston 16 .... 350 Park Square Building Hubbard 2-7160

Chicago 11 ..... Alfred D. Becker, Jr. Francis E. Stewart, 320 N. Michigan Ave., Mohawk 4-5800

Cleveland 15 .... Vaughan K. Dissette, 1510 Hanna Bldg., Superior 1-700

Dallas 2 ..... Gordon L. Jones, Adolphus Tower Bldg., Main & Ackard Sts., Riverside 7-5117

Detroit 26 ..... 586 Penobscot Bldg., Woodword 2-1793

London H. Lagler, McGraw-Hill House 95 Farrington St., E.C. 4, England

Los Angeles 17 ... Peter Carberry, 1125 West Sixth St., Madison 6-9351

New York 36 ..... Knox Armstrong, P. F. McPherson, Charles F. Onasch, L. Charles Todaro, 330 West 42 St. LOogacre 4-3000

Philadelphia 3 William B. Hannum, Jr. Architects Bldg., 17th & Sansom Sts., RIttenhouse 6-0670

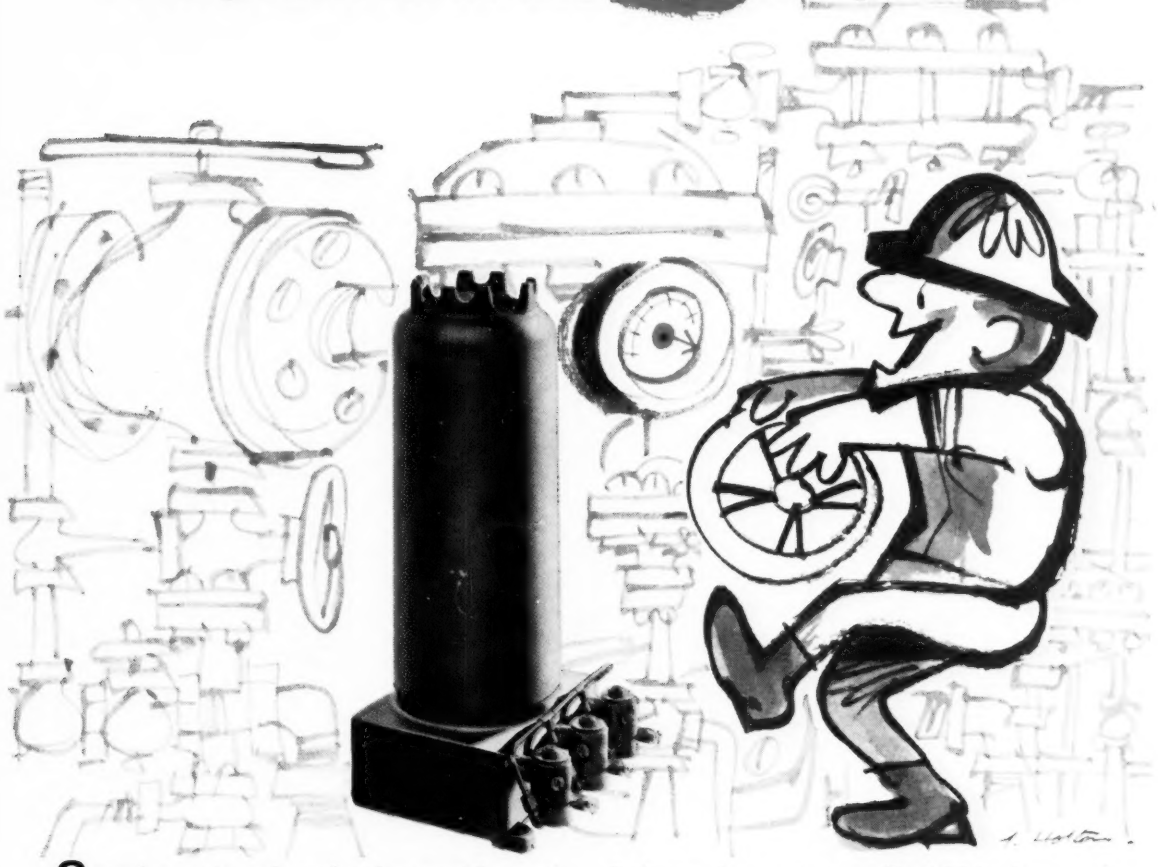
Pisstburgh 22 ..... 919 Oliver Bldg. Atlantic 1-4707

San Francisco 4 William C. Woolston, 68 Post St., Douglas 2-4600

St. Louis 8 ..... 3615 Olive St., Continental Bldg., Jefferson 5-4867

Continuous stream analysis . . . for optimum process yields.

The profit is in the last few pounds



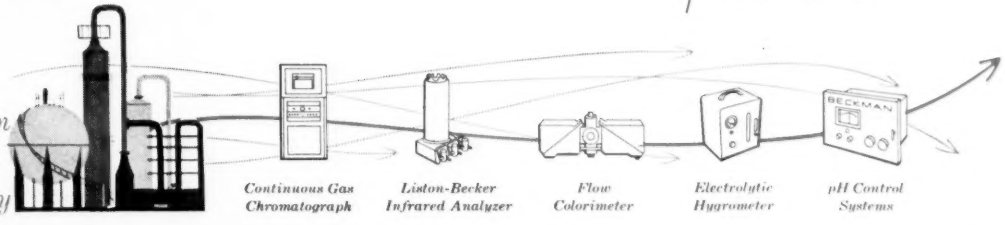
Operating costs and overhead account for most of the pounds, gallons or tons of production. The profit is in the last few percentage points of yield. Only by running the equipment right up to the limit can the precious profit yield be increased. Beckman Infrared Gas Analyzers provide the operator with the continuous, precise process information required for the extra pounds that count.

The Beckman Model 21 Infrared Gas Analyzer is a rugged industrial instrument for the monitoring of plant streams, liquid or gas. It is a positive, non-dispersive instrument of service-proved superiority in reliability and accuracy. It can be coupled with a standard recorder or with a recorder-controller for automatic process control. Commercial applications include continuous analysis for the purity of ethylene (90-100% range) and butadiene (95-100% range); the measurement of methane and ethane in ethylene; CO and CO_2 in hydrocarbon streams and ammonia synthesis gas; unreacted CH_4 in natural gas reforming.

Sensitivity of the Model 21 is 0.1 ppm; accuracy, ±1% of scale. Maximum sensitivity drift is 1% of full scale in 24 hours; maximum zero drift, 1% of full scale in 8 hours. The analyzer unit, in explosion-proof housing, can be mounted vertically or horizontally, convenient to the stream – up to 600 feet from the control panel-amplifier. For full details, write for Data File P-4-17.

Beckman® / *Process Instruments*
Beckman Instruments, Inc.
Fullerton, California

Stream Analyzers for Industry



Continuous Gas Chromatograph | *Liston-Becker Infrared Analyzer* | *Flow Colorimeter* | *Electrolytic Hygrometer* | *pH Control Systems*

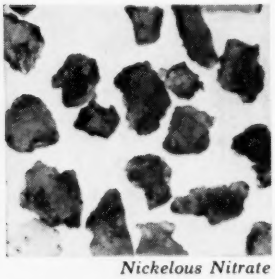
To serve you better...

Baker & Adamson expands production of

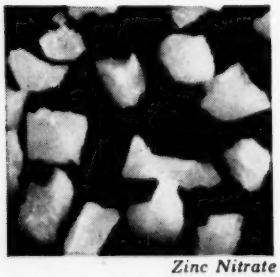
Metallic Nitrates

from A to Z
(Al) (Zn)

Aluminum Nitrate



Nickelous Nitrate



Zinc Nitrate

Metallic Nitrate Crystals Enlarged 12 Diameters

To meet increased demands, Baker & Adamson has put extensive new facilities on stream for the production of aluminum, cupric, lead, nickelous and zinc nitrates.

These facilities, integrated with one of General Chemical's large nitric acid plants, give B&A a basic position which assures you of a continuous, *dependable* source of supply.

Baker & Adamson has long been a prime source for high purity metallic nitrates—Purified or Technical grade, for general manufacturing use; Reagent grade, for more exacting requirements.

Whatever your metallic nitrate needs, *remember*—B&A offers a complete line, including nitrates specially produced for individual applications . . . assures you of both a uniform product and dependable supply.

Mail coupon for product data →

Call or write your nearest B&A office for samples, prices.

FINE CHEMICALS

B·A

STANDARD OF PURITY

REAGENTS

CW-3

BAKER & ADAMSON® *Fine Chemicals*
GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

GC Allied Chemical

Please send technical data on the following metallic nitrates _____

_____

_____

Name _____

Title _____

Company _____

Address _____

City _____ Zone ____ State ____